

Lander
B E L L O A C P A C E P A R A T U S
1726

George Weare Braikenridge.
BROOMWELL HOUSE.

N.

The Hairy Ichidna (Gould Mamm. I pl. 3)
Ichidna setosa Gmelin, Reg. Anim. 1 p. 226
(cf Gould, Mamm. I pl. 3) (1517)

This animal was described by Perry in
Arcana, March 1st 1810 as
Platypus longirostra, the typical
locality is Adventure Bay, Tasmania

Phascolomys latifrons Owen, P.Z.S.
p. 52 (1845)

cf Gould Mamm. I pl. 55

This animal was described by Perry in
Arcana, June 1810 as

Opossum hirsutum, the
typical locality is Botany Bay N.S.W.

Hypsiprymnus apicalis? Cuvier - 68

Aerobates pygmaeus Shaw, Zool. New Holl.
pl. II (1793) (cf. Gould I - 25)

This animal was described by Perry in Arcana
in Aug. 1810 as *Opossum opossum*

This copy is not complete.

CWR

B

Arcana

The Museum of Natural History:
containing the most
Recent discovered Objects
embellished with coloured plates
and
corresponding descriptions;
with
Extracts relating to Animals
and
Remarks of celebrated Travellers
combining a
General Survey of Nature

(Perry, George)

London

Printed by George Smeeton, St Martin's Lane,
In James Stratford, 112, Holborn 1811

1811



45
P463
1810
BCNHRB

TO

J. C. LETT SOM, ESQ. M. D.

FELLOW OF THE ROYAL SOCIETY.

THE PATRON OF THE LIBERAL SCIENCES,

AND OF NATURAL HISTORY.

IN GRATITUDE AND RESPECT FOR THE NUMEROUS PROOFS

OF UNLIMITED KINDNESS AND REGARD :

AND IN REVERENCE OF THOSE EMINENT TALENTS

WHICH HAVE ALWAYS BEEN EXERTED

FOR THE GENERAL HAPPINESS OF MANKIND,

THIS SMALL TESTIMONY OF REGARD,

IS HUMBLY DEDICATED

BY HIS MOST OBEDIENT FRIEND,

AND OBLIGED HUMBLE SERVANT,

GEORGE PERRY.



от

Д. С. ЛЕТТОМ 1826 г.

СЕВЕРНОЕ ПОДВОДНОЕ

СООБЩЕНИЕ О МИНИМУМЕ ВОДЫ ВОЛГИ

ПРОДАЖА ПИСЬМА ПО УДАРУ

СООБЩЕНИЕ О МИНИМУМЕ ВОДЫ ВОЛГИ

ПОДАНО ОДНОМУ АССИСТАНТУ ОТДЕЛЕНИЯ О

СОСТАВЛЕНИЯ ИССЛЕДОВАНИЙ О ВОДАХ

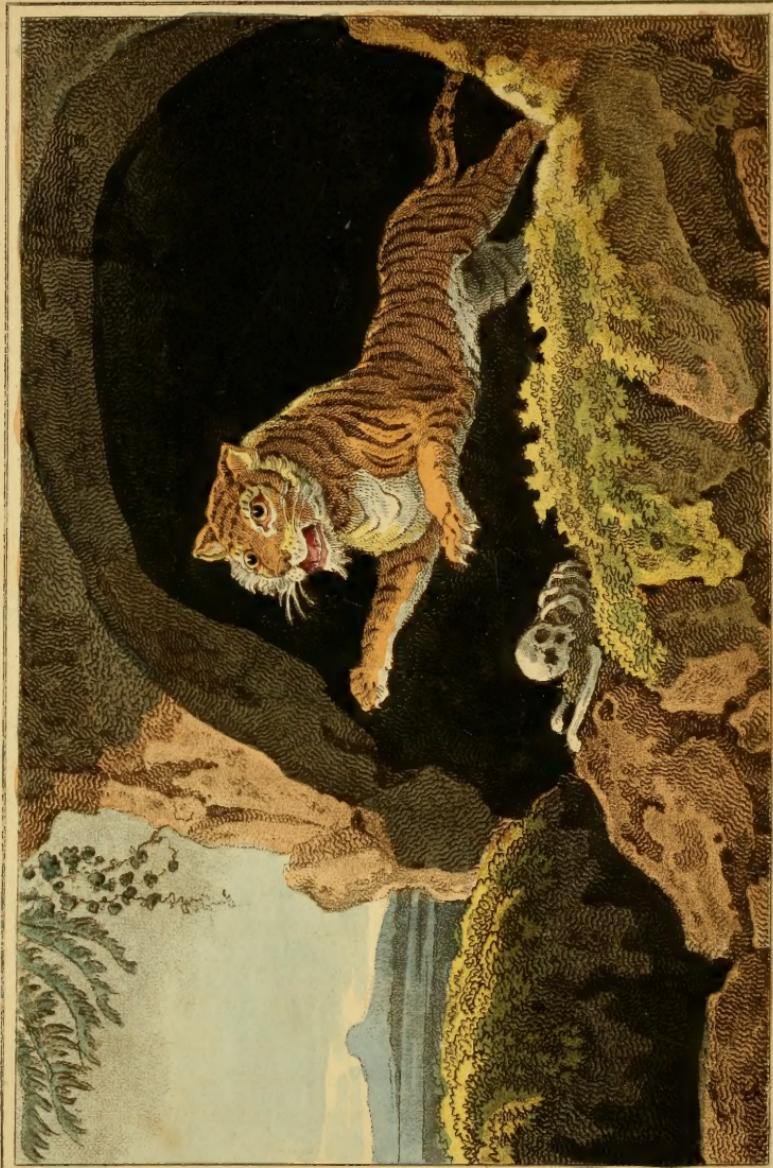
С. С. РИЧЕНКО

САНКТ-ПЕТЕРБУРГ

СЕВЕРНОЕ ПОДВОДНОЕ

СООБЩЕНИЕ О МИНИМУМЕ ВОДЫ ВОЛГИ

САНКТ-ПЕТЕРБУРГ



L. J. Bustyn sculp.

J. C. Whitchelo del.

TIGER.

Published by J. Stratford. Hellorn. Jan. 1st. 1816.

Z O O L O G Y.

THE TIGER.

Felis Tigris, Lin. . . . *Le Tigre*, Buffon.

AMONGST the various animals of prey which infest the sultry regions of Asia, there are few which do not yield to the Tiger in ferocity and strength. Driven from the more civilized haunts of Man, and separated from the society of domestic animals, he ranges through the silent and trackless forest, indulging his natural thirst for blood, dealing horror and devastation through the animal kingdom. In the hotter regions of the Globe where the smaller animals abound, and the Niger or the Ganges roll their tributary streams to the Sea, the Tiger reigns uncontrouled, and spreads his ravages amongst the numerous herds of Antelopes and Deer, where they resort to the springs or rivers for refreshment. If we could for a moment forget the power of his fangs, or the unrelenting fierceness of his nature, we might contemplate with pleasure, the beauty of his skin, and the elegant contrast every where

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displayed in his form and contour. But the sense of his native cruelty, and irreclaimable nature, fill the mind with a secret and thrilling sense of detestation and horror, while astonishment usurps the place of pleasure.

The Royal Tiger of Indostan, and which is supposed to be of the largest race of these animals at present known, measures fourteen feet from its head to the end of its tail; his body is muscular and round, his feet large and projecting, armed with prehensile claws, each of them enclosed in a hollow horny sheath, like those of the Cat-tribe. His legs are short and not well calculated for swiftness, but rather for bounding or leaping upon his prey, for which he generally lies in wait, making a spring of twenty or thirty feet at a time upon the object he intends to seize. His tail is long and beautifully striped, in a similar manner with his back, having bands of dark brown placed across: and in this respect he differs materially from the Leopard and Panther, which are remarkable rather by their round spots scattered irregularly over their bodies.

It would be an astonishing circumstance to the human mind that the merciful Author of Nature should have created such animals only for the purposes of devastation, if we were not at the same time convinced how necessary it is, that the smaller race of animals should be reduced and kept under, and in this point the balance of nature is as admirably preserved, the fiercer and more powerful animals producing only a few young ones at a time. The Tiger notwithstanding his strength, has the peculiar cowardice never to attack his enemy in front, and unless urgently pressed by famine, it is probable he would not fail always to fly from man; but if assaulted, his rage gets the better of his fear, and he becomes resolute even to death. The Lion, Buffalo and Rhinoceros are his natural

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and formidable enemies, and with the Buffalo he is frequently enclosed by the Indian Chiefs in a stage-combat for the purposes of amusement, and in which case he generally becomes the victim.

Upon the whole there is reason to believe that the larger animals of prey, as the Lion, Tyger, and others, are much less numerous than formerly, as Europe is not able at present to exhibit any (except indeed in a captive state) although they formerly abounded there.

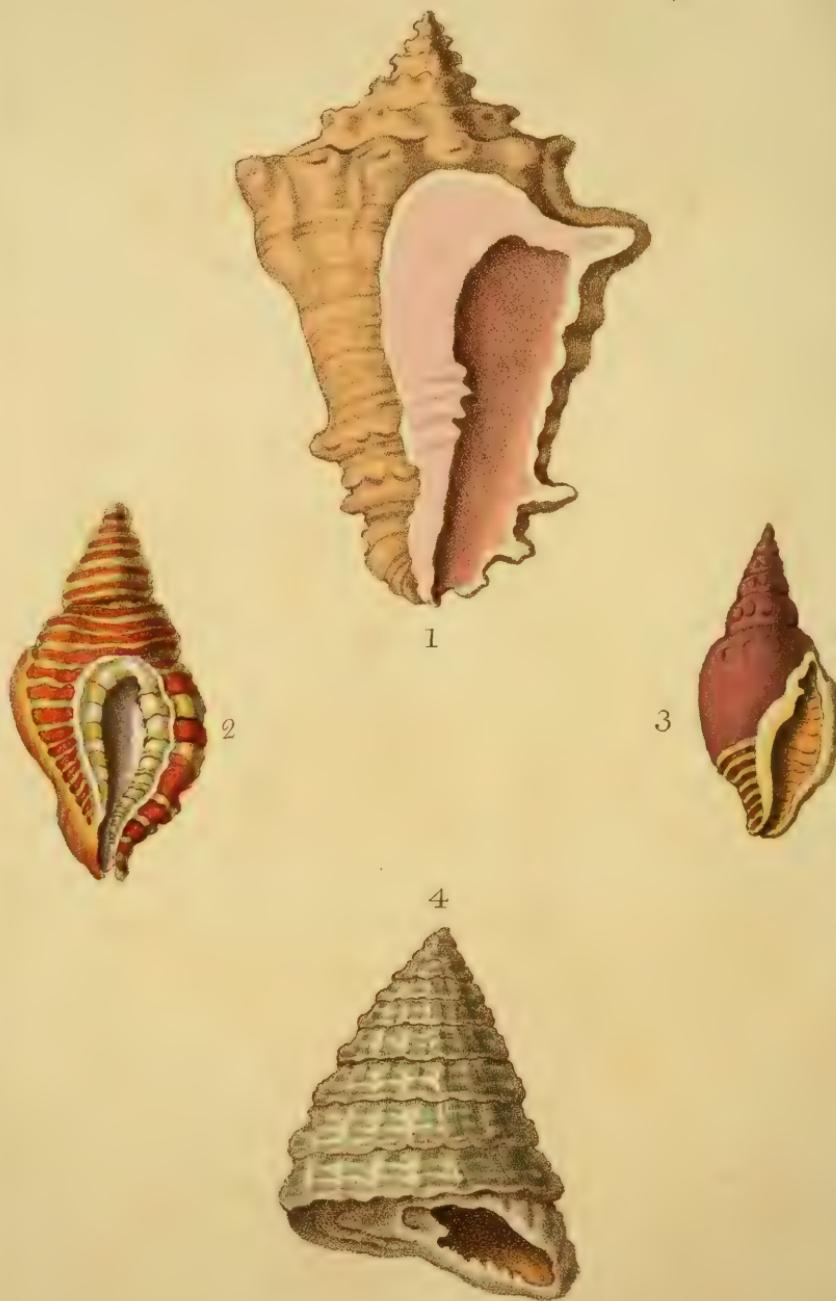
We subjoin the following description of the fight between the Buffalo and Tiger, as described by Captain Williamson in his Indian Sports. "A Pallisado is made of bamboo, thirty yards in diameter, and strongly fenced all round, from the top of which the spectators can behold the combat. As security is the soul of amusement, every precaution is taken to enclose the Area in such a manner as to obviate all reasonable fear. Where a Tiger is one of the *Dramatis Personæ*, too much care cannot be used, as there have been instances of their making their escape, and putting all the spectators to the rout. The walls of the Area are raised twenty feet high, and the populace are placed in an elevated gallery so as to command a view of the whole.

As soon as the Tiger has entered the Area, the gates are closed, and a short time is allowed him to look around and examine his new situation. At first he seems to creep in a cowardly manner close to the Pallisades, wishfully looking at the top, and grinding his teeth at the people who surround the Area. The Buffalo is then introduced, and nothing can surpass the animation displayed at this moment, the Buffalo's eyes sparkle with fury as he views his sculking enemy; he rushes forward with his head down and horns direct, at the Tiger's body, which however

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serves rather to bruise him, than to tear his skin, which is smooth and pliant. The Tiger starts on one side and endeavours to plant himself upon the Buffalo's back by leaping over his head and neck, and in this he is often unsuccessful, and passing over him, changes his place and falling down, becomes submitted to the fury of his horns. The Buffalo however carries on a war of extermination, his rage being excited by his wounds, and the issue terminates uncertainly, but generally in the death of the Tiger, who becomes defeated through the greatness of the fatigue, and length of the combat. The violence of the Buffalo continues for some time after the fight; it is prudent therefore to leave him to cool, and to approach him with water and wet grass, of which he partakes with avidity. The road is afterwards cleared from passengers to prevent all accidents which might otherwise occur."

The present specimen was drawn from the beautiful Tiger in the Menagerie of Mr. PIDCOCK.



G. Perry del.

T. L. Busby sculp.

C O N C H O L O G Y.

THE variety and beautiful colours which are discoverable in the testaceous Family of Shells, have always rendered them an interesting subject to the Naturalist and the Man of Taste.

In describing the four Shells contained in the annexed Plate, we shall endeavour previously to explain the different Characters of each Genus, that the Reader may afterwards more easily recognize each peculiar Distinction appropriate thereto.

Shells have always been classed according to certain Similarities of Structure, observable in their outward form, and not from the qualities of the Animals contained in them, which are, generally speaking, quite unknown, except from Analogy to those which in the living state, are more easily within our reach.

In each Species, we shall elucidate the Genus to which it belongs, by its most striking peculiarities.

CONCHOLOGY.

1. Genus, VOLUTELLA.

Character.—Shell univalve, spiral, the central pillar fluted with four flutes; the body and external cheek invested with tubercles irregularly placed.

Species.—*Volutella divergens*; Shell conical, angulated; of a bright yellow colour; the surface irregularly spinous all over; mouth oblong and labiated, of a rich pink colour.

This Species is very rare, is a Native of the Indian Ocean: and is delineated from an Original Shell in the Collection of Mr. GREENHALL, of London. The Genus is not very numerous, containing only about fifteen known Species.

2. Genus, SEPTA.

Character.—Shell univalve, spiral, having membranceous septa or divisions, placed upon the body and spire opposite and alternate; these are of a different colour to the rest of the Shell, and slightly tuberculated.

Species.—*Septa scarlatina*; Shell small, one inch and a half long; striped with scarlet bands, upon a yellow ground; the mouth white, verging to a brown colour.

This beautiful little Shell was formerly placed erroneously with the Genus *Buccinum*: it is a Native of Amboyna, in the East Indies, and varies from itself sometimes in having the colours very pale: It has been called by the Germans the Liveryhorn. *From a Shell in the Collection of the late Mr. WILLSON.*

CONCHOLOGY.

3. Genus, ROSTELLARIA.

Character.—Shell univalve, spiral, having the outer cheek expanded (and united at the top of the mouth) to the spire; the beak straight and plain, ending in a point.

Species.—*Rostellaria rubicunda*; Shell ovated and slightly tuberculated; the mouth brown and striped; the spire and body of a dark red colour.

Like the former Shell it is a Native of Amboyna; and is from the curious and interesting Museum of Lord VALENTIA.

4. Genus, TROCHUS.

Character.—Shell pyramidically shaped, spiral; having the mouth placed underneath, leaning sideways, and of a quadrangular form; the spire inclined to the base.

Species.—*Trochus Apiaria*; Shell white, striped with green transversely and irregularly; the sides and base slightly rounded and tuberculated.

This curious Shell is a Non-descript, and lately imported from Botany Bay, a country which has afforded an ample field of new subjects for the Conchologist. *From a Specimen in the Museum of Dr. LETTSOM.*

CONCHOLOGY.

REMARKS.

The general divisions of Testacea or Shell Animals, may be classed under the following Orders: Spirales, or Shells which have a twisted spire: Acuminatae, or pointed Shells, as the Patella, &c. : Bivalvæ, or double Shells, as the Cockle, &c. : and lastly, Multiloculares, or Shells having bony compartments, as the Orthoceras, Nautilus, &c. Those which were denominated by Linnaeus, ⁴ Multialvæ, are not found upon Analysis to consist of similar component materials, and therefore ought properly to be separated; such are the Sabellæ, Chitons, &c. These latter are rather to be considered as Animals invested with a horney or membranaceous Covering, rather than Testaceous or Shell Fish; to which may be added, a very considerable difference in their internal Organization.

Philosophers have been much perplexed to account for the Manner of the growth of Shell-fish; and notwithstanding that matter has received a very copious Investigation, it is still involved in considerable doubt. It was once believed that the animal had the power of adding an external Coat or Flap to the side of the Mouth, and which was repeated at certain intervals, enlarging the circle and size of the shell as the Animal increased in magnitude. Other writers have supposed that the Animal had the power of forming a new Covering for itself, and totally deserting the former shell when it became too small. It seems more probable that the Shell has an internal Power of Growth or Expansion, which exists from its beginning or birth, and adapts itself by a general Expansion to the Size of the Animal. Certain it is, that when the Animal is arrived to its utmost size, it has the power of spreading over the whole Surface of its Mouth a substance of the smoothest Enamel, which serves at the same time to thicken and enlarge the Lip; particularly the Strombus and Cowry.

CONCHOLOGY.

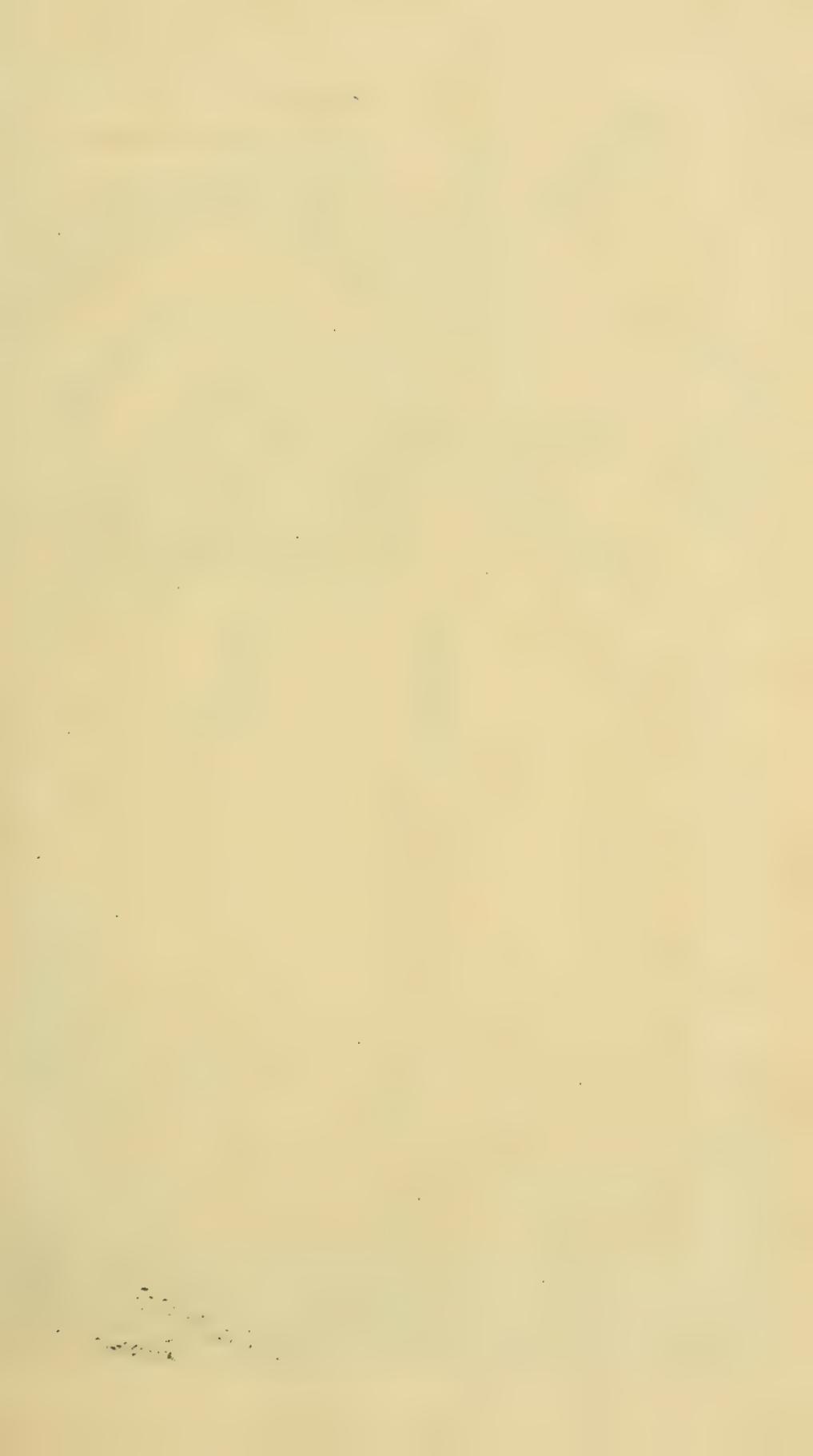
The Analogy which exists in the Vegetable and Animal Kingdoms is in many instances very striking and obvious. Amongst the Plants lately added by the recent Discoveries in the Southern Ocean, several have occurred which are *parasitical*, or living upon other Trees; of which we have a familiar instance in the Mistletoe. The same circumstance occurs in the History of Shells, as several of the *Lepas* and *Patella* obviously shew, but the most singular Shell of this kind is the *Proscenula*, of which several have been lately discovered by Mr. STUCHBURY, in the *Strombus* and other large Shells, firmly adhering to the inside of the Mouth. This curious Genus which is hitherto undescribed, is flat and dish-shaped, in its general Form resembling the *Patella*, but differs from it in having its Apex or pointed summit placed at one end, and also below, a *Proscenium*, Platform or small Stage, projecting in a circular form, from under the Apex. Some of these are so small as to require the Microscope to investigate them fully; and indeed it is not at all improbable, but that the Number of those Shells which are concealed from our View by their smallness, is greater by far than those which are so obvious and fill our cabinets. Several Genera exist amongst the more minute kinds which are astonishing for the Singularity of their Forms, and the Beauty of their Colours. In this hitherto unfrequented Path we have only the Labours of two eminent Authors to guide our Steps; we allude to Fichtel and Soldanus, who have each of them scientifically endeavoured to sketch an imperfect outline for the arrangement of future writers. In the laborious descriptions of Mr. Boys, of Sandwich, who endeavoured to form a general Account of some of the minute English Shells, the plates which accompany the Work are not either sufficiently expressive or beautiful. An hiatus therefore is left in this Part of Natural History, which by an accurate delineation of the objects may prove highly useful and entertaining. The Fossil Shells, which are found enclosed in the substance of

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our most solid Mountains (a lasting evidence of the general Deluge) hold out to the Naturalist a pleasing and interesting Field for Enquiry. Their Forms are so different to those found recent; their beautiful State of Preservation, the curious circumstance of their Enclosure in Beds of Rock or Clay, lay a claim to farther Enquiry and Investigation.

It is our intention to profit by these Remarks, and to bring forward from time to time the most singular and rare Species which may offer themselves to our observation.

The greatest number or portion of Shells at present known revolve spirally from the left to the right; but the Genera *Helix*, *Melania*, and *Bulimus*, are a remarkable exception to this rule, having a great many species which are reversed, still however even in this respect, varying sometimes to the right and sometimes to the left. The *Diogenes* Crab frequently for the purpose of safety and security, takes up his habitation in the deserted shell of some Whelk or Murex, and by this means furnishes a curious instance of natural instinct; from this time, one of his prehensile claws becomes gradually much larger than the other; that which is enclosed in the covering, shrinks up, and becomes useless, thus adapting itself admirably to it's newly-acquired situation. The *Argonauta* by the use of it's oars and sail, has particularly attracted the regard, even of the most ancient writers, and is supposed to have furnished the first idea of a ship. Different in it's internal structure is the form of the *Nautilus*, which has a regular assortment of chambered compartments, connected with each other, and which are entirely occupied by the animal. In short, the facts and observations which Conchology brings to our view, open to the mind, new scenes of continual admiration of that great Being, who has so wonderfully adapted their singular forms and instincts to the situations in which they are placed.



BOTANY



G. Perry del.

T. J. Busby sculp.

PALM TREE

Published by J. Stratford, Holborn, Jan. 1st 1810

B O T A N Y.

THE CEROXYLON, OR PALM TREE.

Polygamia. *Monœcia.*

THE Ceroxylon, or Palm Tree of Peru, which has been submitted to the class of French Institute, by Monsieur Humbolt, is remarkable for it's novelty, as well as it's situation; for the lofty height to which it elevates it's summit; and the singular production of wax it yields; from which circumstance it has been sometimes called the Wax Palm.

Mutis, who has held a distinguished rank amongst modern naturalists, is the only one who had formed an idea of it's existence, which circumstance is mentioned in the supplement to the third Edition of Linnæus's *Systema Naturæ*.

According to the Botanical Distinctions of Linnæus, it must be classed with the Polygamia; of the Order Monœcia.

On the lofty and cloud-cap't summits of the Andes which separate the Valley of Madeleine from the River

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Cauca, this tree chiefly abounds, amidst the most rugged precipices and barren passes of the country.

This Palm Tree is also a Native of Quindiu, one of the mountainous and snowy regions of Peru, and is called the Ceroxylon to distinguish it from the Palm Trees already known: it is said sometimes to reach the amazing height of 160 to 180 feet. The trunk is straight and swelling out in the middle, bearing at the top its immense branches in various directions. The fruit is small and round, containing an oval kernel; the flowers are of two sorts, growing out of a sheath; the hermaphrodite and the female; and are not remarkable for their beauty or their size.

The most extraordinary circumstance relating to this Tree, is the secretion of Wax, containing a small proportion of Rosin, through the whole outside surface of its bark, on each side of the circles where there have been the marks of the former leaves.

Pliny makes mention of a Larix Tree which was used in the Amphitheatre of Nero, and was 120 feet in height; but the Tree at present under consideration, may be indeed regarded as the Monarch of all the Forests of the World, if its gigantic size can entitle it to that distinction.

No advantageous use has hitherto been made either of the Wax, which invests the bark of this Tree, or of the Fruit, both of which might it is supposed be converted to the uses of mankind; the former for giving light; the latter as a pleasant and wholesome food, and containing much sugar. The Timber is of a firm texture, and capable of being formed into beams and rafters for houses; but the difficulty of removal from its original mountainous situation will perhaps be for ever an inseparable bar to its general use and consumption.

BOTANY.

The Palm Trees form a most astonishing family in the History of the Vegetable Kingdom ; their amazing height ; their majestic forms ; the delightful and extensive shadows which they yield to the weary traveller, induced Linnæus to give them the name of Princes of India ; and if we add to these external qualities, the Flour, the Wine, and the Oil, which they so plentifully produce, we may regard them as one amongst those Blessings for which Man has reason to be highly grateful to his Creator.

It is also supposed that this Plant might exist, by a comparison of the climate and temperature, if transplanted to the mountainous regions of Switzerland ; hitherto however there is nothing more than conjecture to strengthen this opinion.

The Flower grows at the upper part of the Tree, shooting from a sheath or spatha, in clusters or bunches, upon which the berries are afterwards formed ; the root consists of various arms and shoots spreading out at the foot, and giving security to the trunk.

The circular stripes which appear in the external bark of the trunk, indicate the gradual expansion of the Tree, each circle being formed every year, so that the relative age of the tree may be easily ascertained.

In the East Indies, the uses of the Palm Trees are extremely multifarious, for independently of the Canauca, Palm, which yields an excellent wax from it's leaves, by boiling ; there is also another species, which supplies the natives with the following articles ; bread, oil, milk, wine, ropes, masts, oars, cordage, clothing, wax, rosin, needles and thread.

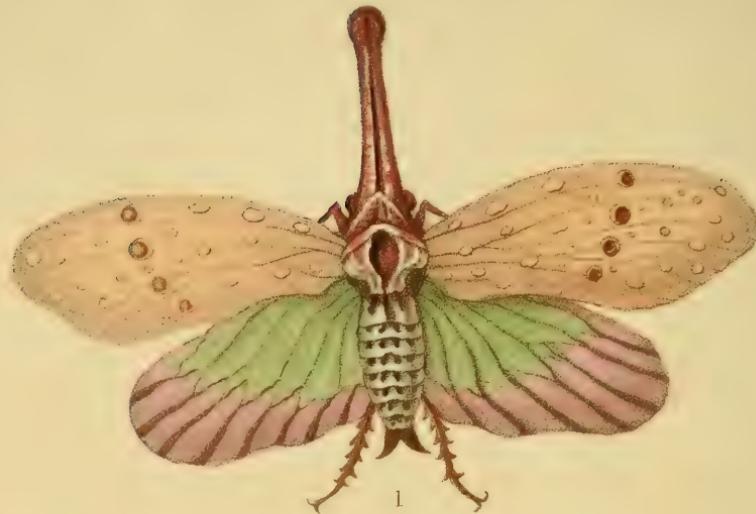
BOTANY.

The Indians have a method of climbing these trees for the fruit, by placing two large hoops loosely round the trunk, into the lowest of which they place their legs, as far as the knee, and then raise themselves by the upper one, placing it at the utmost extent of their arms; at other times by shooting an arrow to which is fixed a rope, over the highest branches of the tree.

We do not find that the Seeds of this Tree have as yet been brought to Europe.

There has been a considerable difference in the opinion of Naturalists, as to the distinctive characters of the Palm Tree; some Botanists having proposed that these should be referred to the Genus Hexandria, and the Genus Polygama wholly abolished. The Fig certainly differs so much from the Palms (by having its blossoms placed within the receptaculum), that it seems rather absurd to place them together; nevertheless as all artificial systems must be subject to some objections and contradictions, it seems better to leave the matter as it is laid down by the great Linnæus, than to abridge the number of the Genera, already specified, as Dr. THORNTON in his late Work has attempted, perhaps without sufficient reason. If any alteration were considered as adviseable in the Botanical system of the illustrious Swede, it would be better perhaps to enlarge than diminish the number of the Genera, as new discoveries of events are constantly made which do not readily reconcile themselves to the present established Genera.

ENTOMOLOGY.

Fulgora

erry del.

T.L. Basty sculp.

Published by J. Stratford Holborn Jan 1st 1810.

ENTOMOLOGY.

HEMIPTERA.

Genus, Fulgora, or Lantern Fly.

Character.—The Forehead truncated and rounded; antennæ underneath the eyes, and doubly articulated; rostrum carved inwardly underneath.

No. I. THE FULGORA PYRORHYNCUS, OR BENGAL FIRE-FLY.

An Insect hitherto almost unknown and remarkable for the beautiful purple and green colour of its under wings. This singular animal which bears some general resemblance to the Genus *Papilio*, or *Butterfly*, has the extraordinary power of eliciting a Phosphoric Light from the internal cavity of its trunk, which forms a striking character in its appearance—The wonderful power which the Glow-Worm possesses of illuminating by its small radiant lamp, the darkness of night, has been the theme of Poets, as well as Naturalists. The present Insect, which is a Native of Indostan, is endowed with a similar power, and contributes in no small degree to excite our wonder by the curious formation of its trunk or lantern, which is intended by Nature to light it on its way. One of the largest of this family, the *Lanternaria*, has been ably figured and described by Madame MERIAN, in her account of the Indian Insects. Having received from the Indians several of these, which she had carefully placed together in a transparent box, she was surprised in the night by their luminous appearance, and taking alarm at the display of the fire, as it indeed appeared to be, let fall the box to the ground, upon which the cause became obvious by the liberation of the Insects.

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The upper wings of the present species are of a reddish brown, richly spotted; the trunk of a dark colour and rounded at the end; the under wings of a rich purple and green, alternately lanceolated in a pointed engrailment.

From a specimen in the Collection of Mr. SMITH, and is supposed to be very scarce; only two being at present known in England,

NO. II. THE FULGORA CANDELARIA.

A Native of China, the trunk of a yellow colour turned upwards at the end and rounded; the upper wings green, streaked with beautiful veins of yellow; the under wings of yellow, edged with black. There is an agreeable contrast in the shades and tints of this beautiful Insect; but it is impossible to conceive what the effect of its light must be, except in its native Country, as it loses its phosphoric effect when dried. Travellers who have visited China may be supposed to have exaggerated its effects, when they inform us, that the Indians perform their journeys by night, carrying one of them fastened to the foot, and one in each hand, by this means making all other light unnecessary.

This Insect undoubtedly has light sufficient for its own purposes, the acquirement of its proper food, or the pursuit of its favourite mate; but of its uses to man we can form no such opinion, as Monsieur LESSER has figured forth in his *Theologia des Insectes*, who would persuade us, that the Natives use no other light in their houses, than this small phosphoric animal.

The present Specimen is figured from the Original in the Museum of Mr. STUCHBURY, and exhibits the pristine colours in their full beauty and splendour.



RATTLE SNAKE.

Published by J. Sowerby, Holborn Hill. Feb. 1st. 1810.

A M P H I B I A.

Crotalus horridus; or *banded Rattlesnake*. Linnæus.

Vipera, caudisonia, Americana. Catesby.

THE Reptile, which is so well known by the dreadfully destructive power of it's poisonous Bite, is a native of the Western Hemisphere, and is found in most of the Islands, as well as on the Continent of America. It seems however to exist chiefly in the hottest parts only, and to be incapable of resisting the frigid state of all the colder regions. Three or four different Species are already known and described, of which the present Snake is the most important, as it frequently reaches the size of ten feet in length; and the stripes in the other kinds are much paler, and not transverse, but placed in a lozenge form along the back.

The distinction of the Serpents into the poisonous and harmless tribes, can only be known by an accurate examination of their teeth; the fangs or poisoning teeth being always of a tubular or channell'd structure, and calculated for the conveyance or injection of the poisonous fluid, from a peculiar reservoir, communicating on each side of the mouth.

AMPHIBIA.

The colour of the head of the Rattlesnake, is brown; the eye red; the upper part of the body of a brownish yellow, transversely marked with irregular broad black lists; the Rattle consisting of several horny membranous cells, is brown and of an undulated form; the articulation of these parts being very loose, makes them rattle against each other when the reptile moves his tail, which he always does when irritated. Yet unless provoked or in pursuit of it's prey, the Rattlesnake must be considered as a sluggish and inactive animal, and is never the aggressor unless disturbed or assaulted. They make a deep wound and inject a very considerable portion of venom, but the poison if applied to the surface of the skin is said to be quite harmless, unless the skin be broken; and it seems to have no effect internally upon the stomach, as the Indians are in the constant habit of sucking the poison from the wounds of themselves or others; for this circumstance, we have the authority of Catesby and other writers on natural history; and it seems not improbable that the human saliva or spittle may be a true and natural antidote for the poison of almost all venomous Snakes, but which opinion however must lay open to farther experiments and observations. It is a remarkable circumstance also that the bite of venomous snakes should be fatal to themselves, which has been proved by experiments when they have been provoked in a state of confinement. The usual time of death ensuing after a person has been bitten by a Rattlesnake is from two to fifteen minutes; this however is supposed to depend upon the state of irritation of the animal at the time, and upon the constitution of the patient; there is reason to believe that in a state of captivity, it's operation would be weaker, as the Reptile is then generally considered as being out of health. The unfortunate man who was bitten to death lately in London, survived for 18 days, but in the greatest agony and pain, the inflammation being carried on to

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the greatest degree. The remedies applied were Salvolatile, Opium, and Brandy mixed with Water, but without the smallest good effect being obtained.

The Americans use a vegetable that abounds in their woods, and which is said to be a compleat and efficacious remedy, by the use of a decoction and cataplasm made from the root.

Of the Fascination or charming Power of the Rattlesnake, as it is commonly called, by which it can draw down from the highest trees small birds and animals, causing them to drop into it's very mouth, much has been asserted by travellers on each side of the question, the most probable explanation of this circumstance may perhaps arise from the terror and confusion into which the smaller animals are thrown by the sight and sound of the Rattlesnake preventing them from making their escape.

The Rattlesnake is a viviparous animal, producing it's young in the month of June, generally about twelve in number, and which by September acquire the length of twelve inches. It is said to practise the same extraordinary mode of preserving it's young from danger which is attributed to the Viper of Europe, viz. of receiving them into it's mouth, and swallowing them; they are afterwards seen to disgorge them when the danger is over. In Winter they retire to the most secret and inaccessible cliffs, where they pass the season in a torpid and dormant state, till the Spring once more brings them forth from their dark habitations.

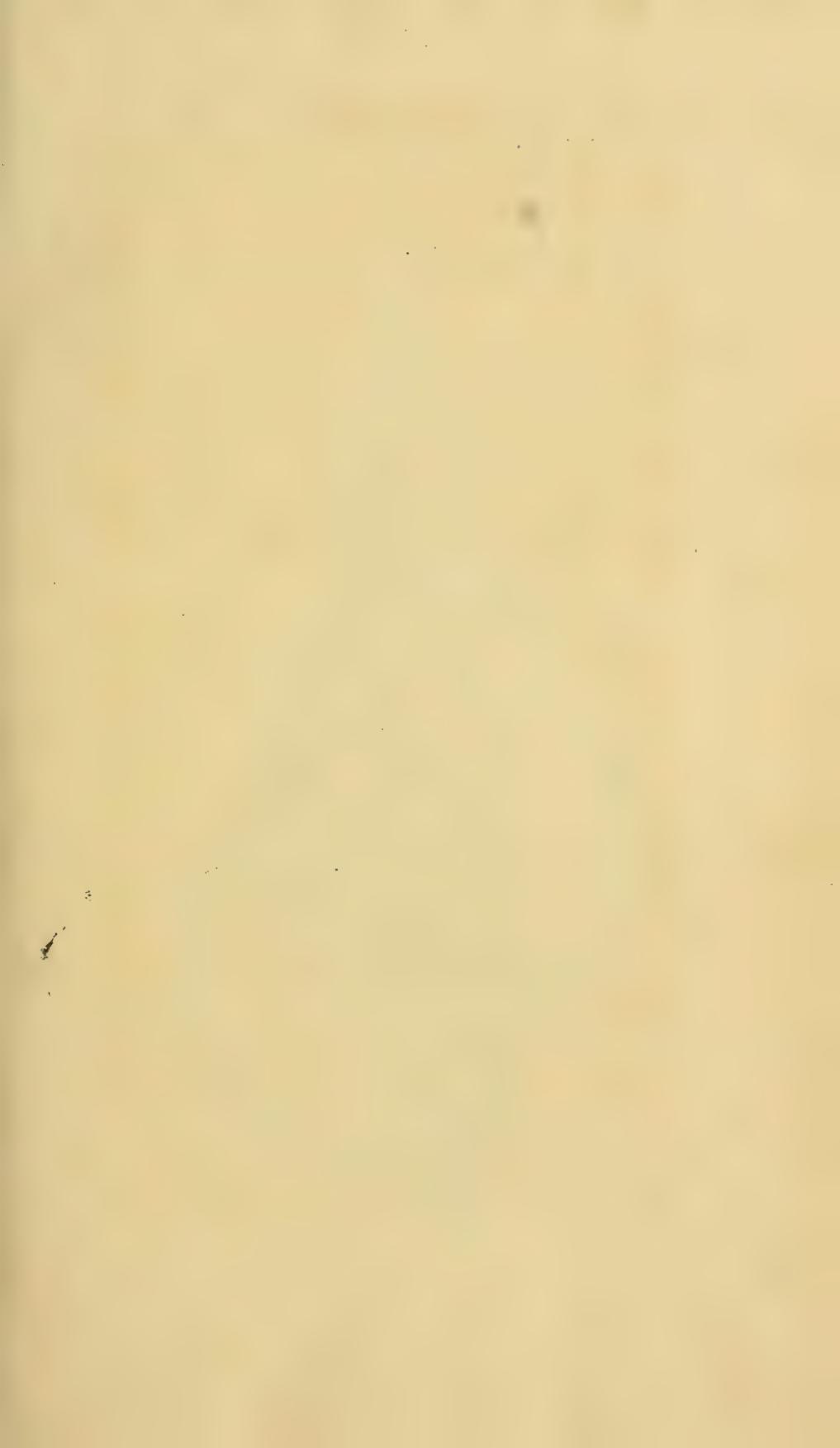
Amongst the most remarkable circumstances in the conformation of the Rattlesnake, may be considered the mechanical Construction of his Tail. The form of it is

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so singular, that no description or even delineation of it will be found inadequate to explain its structure compleatly, without perhaps an examination. At the end of the body of the Snake, there is fixed a membranous appendage which may be called not improperly, the Radix or Root of the Rattle, it is flattish in shape as if compressed; and upon this are placed ten or twelve horny rings or circles, which are connected loosely, and on the motion of the animal rattle against each other, the sound much resembling that of a person playing a game with dice. The circular rings have a strong hold upon each by means of a tightened collar, so that they may recede or be compressed upon each other, by any motion of the tail; and to this impulse the noise is always owing.

As the Rattlesnake changes his skin every year, it is supposed there is a fresh growth in the joints of the tail, and which varies according to the age of the animal. We shall finish our account of this extraordinary Reptile, by a concluding reflection, upon the wisdom and goodness of the great Creator, who has not left mankind, and other creatures, subjected to the danger of its deadly bite, without a means of alarm so well calculated to enable them to avoid and escape the evil. This vengeful animal is also very much confined in it's province and range, there being no authority to justify us in supposing, that they are ever found in the Eastern parts of the globe; they remain confined to the hotter regions of the Western Hemisphere.

From a fine living Specimen in Mr. Kendrick's Menagerie, Piccadilly, London.



SEPTA TRITONIA



Engraved by S. Smith

Published by J. Strutt, Holborn, Feb. 1810.

CONCHOLOGY.

Genus, SEPTA TRITONIA, or TRITON's HORN.

Character.—Shell univalve, spiral, acuminated, divided longitudinally by membranaceous sutures, placed irregularly and opposite, upon the folds of the spire, one of these forming the cheek of the Mouth or Maxilla Oris, the Columella or central Pillar corrugated or wrinkled. The Maxilla Oris is invested with double teeth painted, and of a brown colour.

THIS Shell, classed with the Genus *Septa*, and which has hitherto been described erroneously as a *Murex*, is a native of various parts of the Globe, being found in the Eastern Ocean, and also in the European Seas. It is distinguished by the Richness of its Colours. It has sometimes been denominated the Triton's Horn, from the resemblance which it bears to some of the sculptured Relievos of the Ancients, in which the Tritons, who wait upon Neptune, are represented holding up Shells of this sort, and blowing with them from their mouths a Music, suitable enough to those watry beings.

This remarkable Shell varies considerably in size, being sometimes eighteen inches in length, and by making a small opening at the upper end, a pleasing and agreeable sound may be produced, resembling that of a trumpet, but rather more deep and sonorous in its tone.

Another Shell, which has considerable resemblance in its general form to the one now described, has lately been discovered in New Holland, but it differs in the minuter

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peculiarities of form and colour, being much smaller, and of a redder colour.

For want of proper and sufficient distinctions, several preceding Writers upon Conchology, have placed this Shell with the Murex Genus, but the Murex, strictly speaking, has no Divisions or Septæ on its Spire, in which may be instanced the Murex Morio and Murex Trapezium, &c. of Linnaeus, which therefore must be always considered as belonging to a distinct Family.

*From a charming Specimen in the Collection of
Mr. Gænap, of London.*



CONDOR VULTURE.

Published by J. Stratford, Fleet Street, Feb. 1810.

J. C. Whitehead del.

T. L. Rust, sculp.

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THE CONDOR VULTURE.

Character.—Bill hooked, armed with a bulbous Base.

Head and Neck partially bare, with a naked Skin.

Neck curved and bent back.

Feet armed with crooked Claws.

THE Vulture which has excited the miraculous and fabulous narratives of those who have travelled through the Regions of Southern America, has lately been introduced into Europe in the live state, and is found by no means to equal the astonishing Size which has been recorded of him. The largest which has been known, did not exceed twelve feet upon the extended wings. Nevertheless it so far exceeds the Eagle in grandeur and strength, that if size

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alone were to constitute superiority, it might be truly denominated the King of Birds.

The Vultures in general differ from the Eagles in being of a heavier or less active character; in ferocity however and the untamable disposition of their nature, they are by no means inferior.

The Condor Vulture, the largest known at present is found only in South America, and has made its name terrible to the Natives by the attacks which it sometimes makes upon living animals, and in some cases even upon the human species. Some writers have confidently affirmed that it has been known to carry away Children where an opportunity has offered; and two of these birds have been seen to attack a full-grown heifer, and ultimately destroy it, by tearing it in pieces.

This curious Bird has a singular pouch placed under the lower mandible, of a blue colour, and reaching down the neck; it has also several fleshy appendages on each side of the throat, diminishing in size as they descend. Below the principal crest, which is large and upright, is a smaller one distinct and beset with coarse down. The crest is of a dark grey, and on the front of the neck is a pendent pearl-shaped tubercle; there is also a beautiful tippet of white fur forming an elegant collar round the neck, with the feathers turned back, and the claws are strongly hooked.

Since this bird was first exhibited in England, Monsieur Humboldt has published his Account of the Condor Americanus, and he mentions having frequently met with them on the Andes and Cordilleras Mountains in Peru. The young birds are entirely destitute of feathers, being covered with a fine whitish down, but which is full as thick

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as to give the young birds all the appearance of the old ones.

The Indians are in the habit of taking them by means of nooses prepared for them, and by means of baits of dead carcases sett for that purpose ; for when the Condor has gorged itself with food, it becomes indolent and unwilling to fly, and is taken alive without much difficulty.

A curious stuffed specimen of the Condor Vulture, was lately preserved in the Leverian Museum, and afterwards said to be sold to the Emperor of Austria ; we have no means therefore of comparing the measurement with the living Specimen, although from recollection, the size seems to have been much the same.

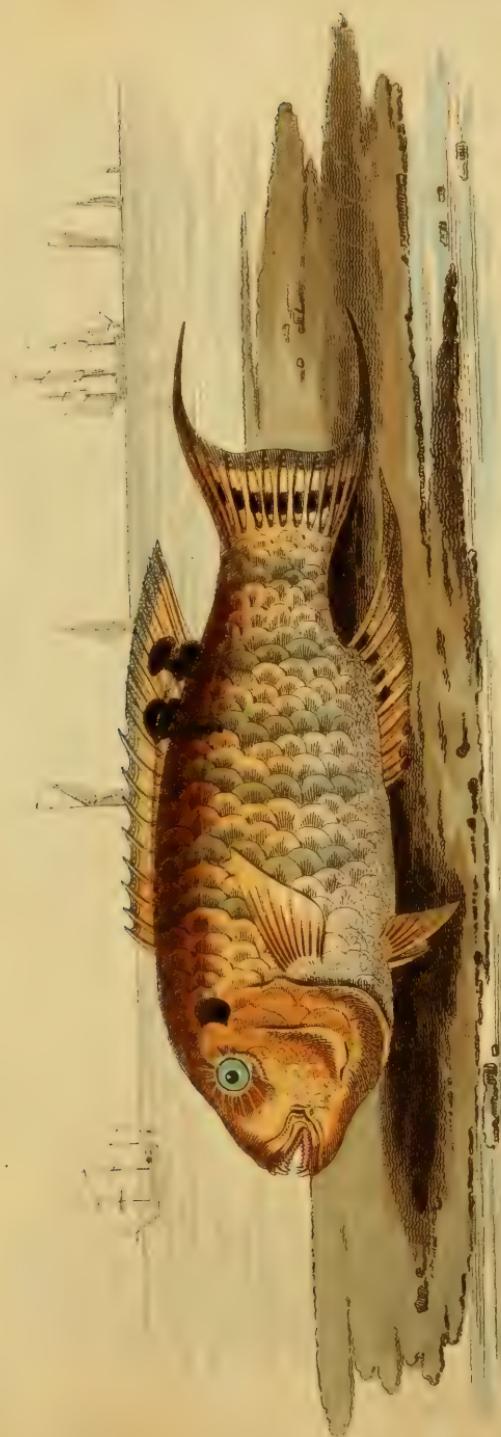
In its captive state it seems to have lost a great deal of its original fierceness, and to submit itself with a considerable gentleness of disposition to the different objects which surround it.

Birds of prey are said to have a greater longevity than others, and in this respect the life of the Condor Vulture is reported to coincide. The Golden Eagle has been said to have lived upwards of one hundred years, and Hawks and Falcons for a much longer term. Their affection for their young is very eminent, and at the times of hatching they are fearless of man and every external danger. Their nests are formed of sticks and dry grass, and are built upon the tops of the most inaccessible cliffs, amidst barren mountains, far from the peaceful and hospitable abodes of man, and where they can undisturbedly indulge in all the gloomy solitude of their nature.

The Condor Vulture, which is at present in Mr. KENDRICK's Menagerie, Piccadilly, London, may be re-

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garded as a valuable acquisition to those amateurs who take delight in the curious parts of Natural History: it is stately and dignified in its appearance, and has preserved its natural appetite through all the horrors of transportation and imprisonment. He daily devours a large quantity of raw beef, and in appearance seems to preserve a vigorous and healthy constitution. In the annexed plate, he is described in the act of carrying away a native Peruvian Child; and as we have the authority of many grave and respectable writers to authenticate such a circumstance, we hope that we shall not incur the censure of the more incredulous and sceptical part of our Readers. It is no uncommon circumstance even in England for the Eagles to carry off Lambs of a considerable size; nor does it seem either extraordinary or improbable that a bird whose wings extend twelve feet from tip to tip, and whose conformation evidently marks him as a voracious creature, should if ever an opportunity occurs, readily and easily exercise its fatal powers upon the unprotected and helpless state of Infancy. The solitary nature of this bird however, and the particular regions to which he is confined, are providentially placed as a barrier and limitation to his otherwise boundless and voracious appetite.



T. L. Bristley sculps.

J. C. Whitchurch del.

SPARUS.

Published by J. Stratford. Hellborn Hill. Feb. 1810.

ICHTHYOLOGY.

Genus, SPARUS.

Character—Teeth strong, front teeth sometimes in a single, sometimes in numerous rows; grinders convex, smooth, and arranged like a pavement; lips thick; gill-covers unarmed; smooth scaly.

THE Sparus Bandatus is a native of the Eastern Ocean, and is distinguished by the elegance of its form and the richness of its colours, its eye is large and expressive, the tail very distinctly forked, the scales are semilunar and orbiculated, having three bands of dark brown transversely placed upon the upper part of the back. It belongs to a very numerous Genus, of its peculiar habits therefore, nothing is very particularly known.

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REMARKS.

IN the various scales of living creatures which the extensive Field of Nature opens to our view, none is more calculated to strike us with astonishment and admiration than the Wonders of the Deep. Although the quantity of Birds, Animals and Insects which inhabit the terrestrial part of the Globe, is so great as almost to baffle all calculation, yet it is impossible not to suppose that the Ocean contains animals in a far greater variety and number than has been hitherto conceived or imagined.

In each individual Fish the increase of the progeny is almost incredible; if then we take into our enumerations the various Regions hitherto unexplored, the Bays and Gulphs, the Seas and Rivers, with all their boundless variety, we shall be lost in astonishment in so wide and extensive a view of Nature.

The habits and propensities of Fish are as various as their forms, whilst some by their voracious qualities are wisely designed to thin the over numerous swarms of the shallow coasts and rivers; others are singularly defended by a curious coat of external armour, resembling the spines of the hedgehog, or by a most deadly weapon fixed upon their beak, as the Sword Fish and the Narwhal.

The most destructive fish, the Shark, produces only a few young ones at a time, and by this means the admirable economy of nature is kept up, for if these fish were to be multiplied as rapidly as some of the smaller ones, the Ocean would be shortly exhausted of its population.

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But one of the most singular instruments of defence or annoyance imparted to fish is that which is displayed in the *Gymnotus Electricus*, or Electrical Eel, which has the power on being touched of imparting a violent electrical shock, and of repeating it for several times; and this quality seems to be inherited by several others, even after they are dead. By this means it is said frequently to fix upon its prey, and sometimes to defend itself from its pursuers.

“ Thus is nature’s vesture wrought
To instruct the wandring thought.”

The Flounder, Soal and other flat fish which reside always at the bottom of rivers and bays, are deprived by nature of the air bladder, that natural instrument by which other fish can raise themselves to the surface of the sea.

The Whale, that fish of tremendous size, found chiefly in the Northern and Southern Regions of the Globe; is not found to be piscivorous, but exist chiefly upon a small kind of worm that exists in great abundance in those seas.

How astonishing is the instinct which directs the Herring at particular times of the Year, to seek a milder and more genial temperature, as well as the multitudinous swarms of Cod Fish which annually pay their expected visit to the seas and bays of Newfoundland.

Previous to a more particular description of the future species, the general character of this peculiar tribe of creatures will be more particularly pointed out. One of the most striking distinctions of their mode of life, is their constant residence and subsistence in Water, which is their natural and peculiar element, and for which they are admirably fitted by the gills or *branchiæ*, which answer the

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same purpose as lungs in other animals; without the intervention of an auricle and ventricle. The blood after being pushed forward by the heart into the ramification of the gills, is received by a large number of small veins which unite and form a descending aorta, as in the Mammalia tribe, *which probably is the case with all Fishes*.

The general form of a fish may be not improperly compared to that of a Ship, the tail being regarded as the rudder, and the side fins as the oars, provided for impulse through the watery medium in which they dwell. For the purpose of raising or depressing their bodies in the Sea, they are provided with a curious air bladder, which by muscular compression can be made to condense the air contained therein, and by this means becoming themselves specifically lighter or heavier than the medium in which they move, they can easily rise or descend at pleasure.

Fishes are also endued with the sense of hearing, which has been made evident by several curious experiments; and the organ which is adapted for this purpose is situated immediately behind the eyes.

Their scales form a convenient kind of moveable armour, which is thoroughly covered with a glutinous substance for the purpose of gliding more easily through the waves.

They have also the power of smelling in a very exquisite degree, as is evidenced by their peculiar manner of taking or rejecting the bait.

Their eyes are placed variously, being most generally on the sides of the head, but on the flatter kinds of fish always at the top or summit, being in this manner more essential to their preservation.

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The names of the fins which may not improperly be called their arms, have been distinguished in the following manner. The dorsal, or back-fins; the pectoral, or breast-fins; the ventral, or belly-fins; the anal, or vent-fins; and the caudal, or tail-fin. And lastly, the Cartilaginous fishes have only a membranaceous skeleton instead of a boney one, as their name naturally imports.

There are some kinds of Fish which have the singular property of being able to exist for a considerable time out of the water, as is the case with the Eel and the Flying Fish. It must be supposed that there is a corresponding difference in the organic conformation of the gills.

Fish are to be considered, by those conversant with mechanicle principles, as being admirably adapted by their form for the quickest and easiest transitions and motion. For this purpose they are shaped like a wedge, capable of cutting and dividing the medium through which they move, the nose being in general pointed, and the rest of the body gradually widening in breadth; this peculiar shape being the most favourable for swiftness of motion. Some species of Fish have their mouths placed under their head, as the Remora, or Sucking Fish, by which they can adhere very strongly to objects which they seize. By this circumstance the Shark is obliged to turn himself over, with his body up, before he can make his bite, and from this delay the life of the person devoted to his fury is sometimes saved.

The tail may be considered as a double fin, acting upwards and downwards; it can also impart a sudden motion forwards, in the manner of a scull or oar, such as is used by boatmen at the stern of their boats. The most surprizing efforts of all these, and depending upon the motion of the tail, is that which is exerted by the Salmon, in their passing

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over the celebrated Salmon Leap, at Ballyshannon in Ireland. The natural instinct of this Fish impells it at certain seasons of the year to resort upwards, through all the river streams, for the purpose of depositing its young, where it meets with a sudden and steep cataract or fall of water, its course would be ultimately stope; the Fish however doubles its tail round as far as the mouth, and by a sudden and elastic expansion of the tail forces itself into the air; thus by repeated efforts gaining a greater height than the cataract, it at last regains the uppermost stream.

It is probable also that the Flying Fish throws itself into the air by a similar means and process, where it uses them for a long time as wings only, but afterwards when they become dry is obliged to drop down again to its native element.

The specimen of the Sparus Bandatus, was engraved from a beautiful correct drawing presented to the Editor; accompanying the embellishments by Mr. Whichello.



J C Whitchelo, del.

T L Busby, sculp.

NONPARIEL PARROT.

Published by J. Stratford, Holborn, March 1. 1810.

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PSITTACUS NONPAREIL; OR NONPAREIL PARROT.

Character—Bill hooked, prehensile; feet scaled and strongly armed with claws; the head and neck scarlet; the back blue streaked with yellow.

THE specimen here described is a native of Botany Bay, and has lately been imported alive into England; its plumage consists of an assemblage of the richest and most striking colours, and is delineated from the Museum of Mr. BULLOCK. In size it is considerably less than the common parrot, but does not resemble it in the imitation of the human voice; the cry which it sometimes utters, being rather like that of a Turtle Dove. The Parrot, Parroquet and Lory differ chiefly from each other in the size of the body, and in the form of the tail, but the general discriminating character of the bill is similar throughout the different tribes.

The celebrated naturalist, LINNÆUS, has divided the families of the feather'd part of the creation into six orders;

1. *Accipitres*; or *Predaceous Birds*: such as Vultures, Eagles, Hawks, Owls, and a few others, distinguished by the bill being of a crooked form.

2. *Passeres*; or *Passerine Birds*: comprising Pigeons, Larks, Thrushes and all the Finches or small birds in general, either with thick or slender bills.

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4. *Gallinæ*; or *Gallinaceous Birds*; or such as are more or less allied to the common domestic fowl, and consequently containing the Pheasant and Partridge-tribe, the Turkey, Peacock, and several other birds.

5. *Grallæ*; or *Waders*: consisting of all the Heron tribe, the Curlews, the Plovers, &c. having lengthened legs, and chiefly inhabiting watery situations.

6. *Anseres*; or *Web-footed Birds*: as the Swan, Goose and Duck tribes; the Gulls, Penguins and many others.

Out of these six Linnæan Orders, some Naturalists have instituted a few others in order to give a greater degree of precision to the arrangement; nevertheless it cannot be considered as absolutely necessary. Thus the Pigeons have been sometimes considered as properly forming a distinct order of Birds, under the title of *Columbæ*, or the Columbine Birds instead of being ranked among the Passeres of Linnæus. The Ostrich, Cassowary and Dodo have been supposed to constitute a division called the *Struthious* Order, instead of being placed with the *Grallæ* or *Gallinæ* of the former writer.

Birds are distinguished chiefly from other animals by the following singularities. In the circumstances of their anatomy they may be described according to the ancient method, as a two-footed, feather'd animal: the breast bone is solid and shaped like the keel of a ship, for the purposes of greater security and cleaving the air; the arms (as they would be called in other animals) are covered with long feathers, and answer to the design of Nature in their winged flight; the mouth is triangular and projecting; the tail spread out more or less in a feather'd extremity; the down

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which is frequently involved by the larger feathers, is of a soft texture like hair, and the quills of the wings gradually vary in their size from the origin to the extremity, and are capable of being folded up closely to the body; the feet are divided into toes or claws branching out and armed at the ends with a strong hook or point; but the most remarkable circumstance of all is their bill which answers the purpose of mouth and nose; the eyes are placed upon each side of the head, by which means they are more protected from external injury and are invested with a curious nictitating membrane, by which they can exclude any degree of light when found to be too powerful. The instinct of birds is no less surprizing than their structure, the conjugal attachments which they form, so necessary to the protection and support of their young, the long and fatiguing journeys performed by the migratory tribes of birds, are proofs of Providence the most striking and decisive.

The beauty and splendid plumage of the tropical birds has been the general theme of admiration with almost all travellers. Nevertheless it is much to be questioned if they who reside in the temperate regions of the globe, would willingly exchange those feather'd songsters which charm them in every succeeding spring, for the gay Birds of Paradise or the splendid Macaws. The inhabitants of the hotter climates of the East and West Indies are frequently stunned and wearied with a continual noise which results from the vocal tenants of their forests. The Saw-Bird, so called from the incessant croaking noise which it makes in the night time, is enough to weary the most resolute patience with its monotonous sounds. In England, if we wish to be charmed with the songsters of the grove, it is always from choice, not from necessity, and we must court the lonely Philomel, if we wish to enjoy her enchanting and

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unobtrusive notes ; this circumstance has been beautifully illustrated by MILTON :

Thee chantress of the Woods among
I woo to hear thy evening Song !

If the melodious qualities of song are to be highly valued in preference to gaudy colours, we possess the harmonious Wood-lark, the cheerful and sociable Robin Red-breast, the active and lively Sky-lark, to awake our senses to a delight for the charms of melody, and which breathe into our minds a more congenial sentiment than can possibly be derived from any foreign productions. As nature gives not all great qualities together, it is possible to admire the beauties of their plumage, whilst at the same time we lament their want of harmony and association to the human feelings.

The Parrots are generally found in the hotter climates of the globe, and are distinguished by their crooked bill and the peculiar form of the claws. Those which have been lately discovered in New Holland form a numerous assemblage of new and striking characters hitherto undescribed. From these we have selected the Nonpareil Parrot, which for the richness of it's scarlet and blue plumage may be justly appreciated as one of the most beautiful of it's tribe. It's head and neck are of a deep scarlet ; the back blue, striped with yellow ; the bill and legs brown, and it's character is more lively and interesting than most of its congeners. Of its native habits however, we are at present little acquainted, as the attention of travellers in New Holland has been so much arrested by the great variety of new objects as to prevent them hitherto from enquiring closely into the character of each individual species.



T. D. Buckle esq.

PLATYPUS.

Published by J. Stratford Holborn March 11 1810.

Ornithorhynchus. d. 1st

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PLATYPUS; OR ORNITHORINXUS PARADOXUS.

THE singular structure and appearance of the animal which we are about to describe seem to remove it equally from almost every creature at present known, and with which, according to the Linnæan system, we should be inclined to class it. The extensive Continent of New Holland, or rather Island (as it may more properly be termed) being entirely surrounded by the Sea, is now ascertained to be of an amazing size, larger than the whole of Europe, and to contain animals of quite a different nature to those found in the other parts of the World.

This is to be considered as the strongest natural proof to a reasoning mind, that the Flood or Diluvian Overflux of the Ocean, was not universal, for if so, it would be impossible to account for the restoration of each individual species to each particular climate.

The Plants, the Insects, the Animals, and even the Fish, are in this new and lately discovered region, entirely distinct and secluded in their nature and manners; even man himself seems to differ here from his own species in the peculiarly untractable and savage constitution of his mind. Although it is not very improbable that the human species may have emigrated to this singularly detached country, from the neighbouring Islands of the South Sea, yet it is utterly incredible that the animals could have done so, or that they could have been brought there for any particular purpose, as they are not to be found any where else in a similar state. The Kangaroo, the Opossum and the Wombach of New Holland, and above all, the animal about to be described,

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are so evidently distinguished, that we must consider them as created in their present situation, as one great link in the chain of animated existences. Some modern philosophers anxious to account for the infinite varieties of animals and plants, found in different regions of the Globe, have asserted, that by the lapse of ages, or the change of food and climate, such an alteration may gradually take place, as to make from the same individual an apparently different species. Such a theory however seems by no means reconcilable with the generally acknowledged facts of nature.

The Platypus might be classed along with the Seals, if we were to consider only its external appearance, as its legs are very short and invested with a membranous fin between the toes for the purposes of swimming, and which stamps its character as an aquatic animal. Its nose or bill much resembles that of a Duck; there are no teeth, but in place thereof is a serrated ridge on the internal edges of the under mandible. The length of the whole animal is thirteen inches, measuring from the tip of the beak to the end of the tail. It resides chiefly in watery situations on the banks of rivers, and its food is supposed to consist of aquatic plants and animals. On the upper part of the head, on each side, a little beyond the beak, are situated two small oval spots of white, in the lower part of which are imbedded the eyes, or at least those parts which Nature has allotted for vision, but they seem (perhaps like those of some of the Moles) but imperfectly calculated for distinct vision. Its general conformation appeared so extraordinary that when first discovered, some eminent Naturalists suspected an intention of deceit in the different descriptions given of it, but several specimens being lately obtained from New Holland, their doubts of its originality became compleatly removed.

A second animal of the same Genus, and which may be called the Platypus Longirostra, has lately been shot in

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Adventure Bay, at Van Diemen's Land, and is supposed to be closely allied to the above in its external and internal habits. The chief difference consists in the tail being much shorter, and the nose much more taper (but still resembling a Duck's bill) and the body covered with a brown coat of thick hair interspersed thinly with blunt quills. It was 17 inches long and walked about two inches from the ground. The above description agrees with an accurate drawing made upon the spot at the time, and brought over to England by an eminent Naturalist. These two animals have been considered by Dr. SHAW, as having a very great analogy to the Myrmecophaga or Ant-Eater, which it resembles in the circumstance of being without teeth, but the feet certainly are very different, as also its ears, which consist merely of open uncovered foramina, and are placed directly behind the eyes. The feet of the Ant-Eater have separate claws, but those of the Platypus are united by a strong membrane, the distinguishing character of all animals which reside much in the water.

The back of the Platypus is covered all over with thick and close hair of a dark brown colour, much resembling that of a young Otter, but though obliged to walk very awkwardly upon land by means of the shortness of his legs, yet there is no doubt but that in the rivers, he can make a more rapid progress.

It is an observation which has not escaped the regard of those Naturalists who have described the creatures of New Holland, that all the quadrupeds hitherto discovered in that extensive region are void of symmetry in form and beauty of colours, whilst in the feather'd tribes, and in the vegetable kingdom the greatest profusion of beauty prevails. No beasts of prey have hitherto been discovered, a few species of the Racoons, Opossum and Kangaroo being all

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the animals hitherto known, although it is much to be expected that when the vast internal forests of the country come to be explored, that animals may perhaps be found exceeding in singularity and in size any which are now delineated. Thus the veil of Nature will be gradually removed, and the advantages of Commerce and Science ultimately extended to the most distant and unknown regions of the Globe.

All the animals of New Holland seem to be formed with legs and arms either too short or too long. This is remarkably the case with the Kangaroo, the Platypus and with the Kaoli, a new animal of the Sloth kind, lately brought over from that Country. As this animal is entirely new and hitherto undescribed, it is our intention to give a delineation and description of it in one of our succeeding numbers, from the original animal in Mr. BULLOCK's Museum. The investigation of the different varieties of Nature is at least highly interesting and instructive, although not at all times reconcilable to our preconceived ideas of beauty or of general utility.

The Platypus seems wholly deserted by Nature, as to any means of defence from its enemies, or from animals of superior strength, and may therefore be considered as a perfectly harmless and timid creature.



TL. Busti. sculps.

GREEN PARROTT.

Published by J. Stratford, Holborn, March 1. 1810.

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PSITTACUS VIRIDIS. GREEN PARROQUET.

FROM NEW HOLLAND.

THE Aras, or Macaw, has been generally placed by Naturalists at the head of the numerous family of the Parrot tribe, and that chiefly from their superior size and the magnificent display which they make of their great length of tail. This distinction seems very proper and indeed due to them, as it is according to the order of other arrangements of Natural History, the Eagle and Vulture being placed before the Falcons and Hawks; by this means we naturally descend to the smaller and less conspicuous kinds of the Parrot and Parroquet. The Aras, or Macaw, is discriminated from the other orders by a very particular mark, which consists in the naked cheek, or rather by a naked membrane, which being without feathers, embraces not only the whole of the face but also the lower mandible of the beak. This membrane which surrounds the eye, gives to the Physiognomy of the Aras, a disdainful and disagreeable character, it is always found to be white in the Aras of the New Continent, at least in those species hitherto found. All of them have the tail very long and variously divided and joined; to these peculiar characters of all the Parrots in general, a bill strong and crooked, which serves them for climbing; the upper mandible moveable, the tongue plump and round and quite blunt; the nostrils round and situated at the base of the beak, two toes before and two behind, of which the foremost are very much flattened; the tarsus of the foot is short and depressed, and which forms a rest for their feet when walking.

These birds, according to the report of travellers, generally fly in troops; they perch on the most elevated branches



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of the forest trees; they feed on the different fruits, chiefly of the Date kind. They are docile and capable of being tamed and are easily taught some few words, but their tongue is too thick for them to speak distinctly; and with a strong and harsh voice they habitually repeat the word *Arra*, from which they take their name; they are also long lived in their own country, but greatly susceptible of the impression of a colder atmosphere.

The Parroquets on the other hand are distinguished by a bill and face covered with feathers, and from the different form of their tails, they have been divided by *LEVAILLANT* into three families, of which a future and more particular description will hereafter be given when the separate species will be elucidated.

The present bird is the Green Spotted Parroquet of New Holland, and is supposed to be hitherto undescribed. It is delineated from a specimen in the Museum of Mr. *BULLOCK*, and is of a form and character highly pleasing. Its general colour is of a uniform grass green richly variegated and adorned with black angular spots, the hinder feathers of the wings brown, the bill black, and the tail-feathers long and spotted alternately with black and light green spots. Nature seems to sport with unbounded variety in the plumage of the Parrot tribe, yet the transition of the shades is generally so gradual, owing to the reflection of the rays that every harsh contrast seems to be carefully avoided. The tufted species are adorned in a remarkable manner by the spreading crest, which gives a singular appearance, as they have the power of raising or depressing it at their pleasure. The imitation of the human voice, which in some of them is so close, as to be hardly distinguished, adds much to the interest which they otherwise gain over Mankind, and in some instances they seem, in a certain degree, to possess

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that intelligent principle which is denominated Reason. The number of the species already discovered, it is supposed must amount to about three thousand, and when the inner parts of the countries near the South Pole, are farther investigated, there is little doubt but this curious part of Natural History will be still further increased and enlarged.

To the above general description of the Parrot tribe, we may add this singular circumstance respecting their mouths, namely, that they have the power of opening the mouth wider than any other bird, by means of an elongation of the hinge of the jaw, without which they would be unable to eat their food, owing to the great curvature of the upper mandible of the bill. Their feet are formed like those of the Cameleon, with two claws before and two behind, to enable them to ascend or descend with greater ease amongst the branches of the trees, also to hang downwards and turn round, of which practice they seem to be particularly fond.

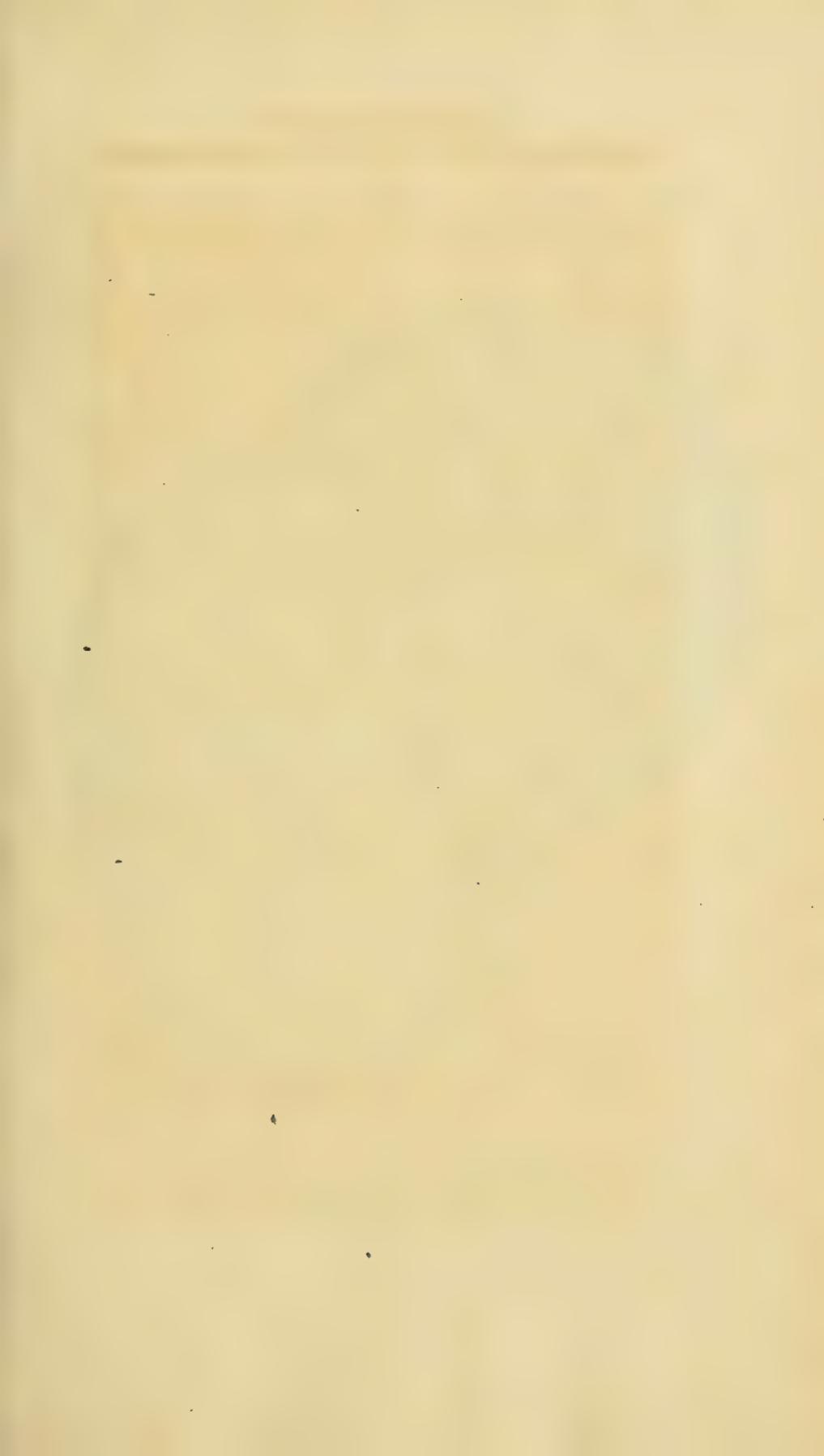
The terms used in describing the Parrot, Parroquet, and Lory, have been indiscriminately used and confounded with each other, by which great confusion has been introduced. Some of our Naturalists following the example of LATHAM, have placed the crested Parrots in a distinct family, but there seems hardly a sufficient reason for so doing, for if two birds agree with each other in all respects, excepting the having a crest or having none, the Genera might then become too numerous for any convenient purposes of Classification. Several of the species of Birds which are crested, particularly the Grebes and Starlings, are not divided from their congeners, upon the small circumstance of a difference as above mentioned. The form and length of the Tail is indeed another strong mark; and it seems proper enough that the form of the Bill should be taken into consideration.

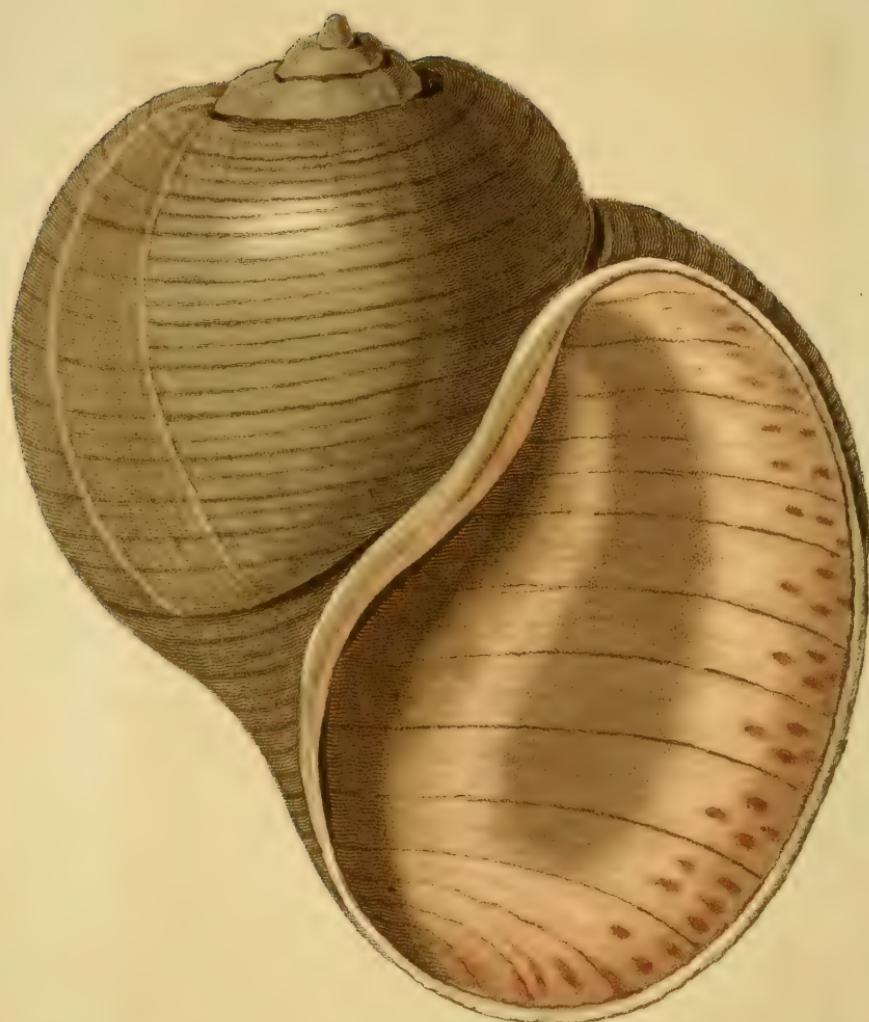
ORNITHOLOGY.

The French author, Monsieur LEVAILLANT, has in this respect, adopted, as we conceive, a very laudable and perspicuous arrangement, by placing the Aras at the head of the grand Work which he has lately published upon this most interesting subject, afterwards dividing the remainder of these Tribes into three Genera, by the distinguishing characters of the Tail. It is our intention therefore to adopt his system in the future descriptions in this Work, regarding it as more systematical and classical than any other that has hitherto been published.

For this purpose we shall shortly present to our Subscribers, a correct Representation of the Ara Militaris, or Military Macaw, from a fine specimen in the Collection of Mr. BULLOCK, recently brought over from the South Seas. These Birds, (the Aras,) partake very much of the character of the Eagle, and may be denominated the Kings of the Parrots, from their superior size and the dignity of their carriage and demeanour.

In a subsequent number, will also be given, an exact delineation of the Termes Bellicosus, or African White Ant, from the same valuable Museum before mentioned.





G. Perry del^r

T.L. Busby sculp^t

POMACEA MACULATA.

Published by J Stratford, Holborn, March 11810.

CONCHOLOGY.

POMACEA MACULATA.

Character—Shell univalve, orbicular, spire short, round and obtuse, mouth open and divided by a circular margin from the body, beak none.

THE Shell at present to be described, is analogous to the *Helix* or *Snail* in its form and appearance, and has generally been classed with that Genus by former authors, nevertheless its distinctions are sufficiently striking to have prevented such a gross error in its arrangement, the mouth being divided all round from the body by an upright and distinct margin, which the *Helix* or *Snail* Shell is always without. It is therefore not unappropriately denominated the *Pomacea* or *Apple-Shell*, from its general resemblance to *Pomum*, an *Apple*, the Latin name for that well known and familiar fruit. It is delineated from a specimen in Mr. *BULLOCK*'s Museum, and is conceived to be a Native of the South Sea, but of what part is not at present exactly known. It may certainly be considered as being very rare. The colour on the outside is of an olive green; its mouth of a pale brown, spotted with brown marks; the spire very small and short, but at the same time strongly furrowed and very distinguishable. All the fish which are to be found in this family of Shells, are highly delicious in their flavor, and form a most nourishing species of food. We are informed that the ancient Romans had so great a fondness for Snails, that they had wells constructed for the purpose of feeding them, and that they were afterwards sold at very considerable prices.

The Moderns seem to hold them much in contempt, and although constantly exposed for sale in the public markets, seem to be merely appropriated to the sickly and

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weak, being considered by some as a powerful restorative in cases of Consumption.

Several of the earliest writers upon Conchology, had divided the Shells of the Sea from those of the Land, by the distinguishing names of the Terrestrial and the Marine, but this division is now overlooked by the circumstance of several of them living alternately in fresh water, or Bays of the Ocean, or in Rivers where the Tides occasionally flow inwards and outwards.

The Genus *Pomacea* does not form a very numerous assemblage, and indeed has been most surprisingly overlooked by most of our recent authors. Very few have hitherto been found on the coasts of England, and those in general very small. Its natural place is the next in order to the Genus *Helix*, before mentioned; it approaches also in some of its characters to the Genus *Bulimus*, *Melania*, *Ancilla*, and several others which are without a beak, and also reside generally in the fresh water rivers and lakes of different regions.

ENTOMOLOGY.

An Account of the Termites Bellicosus, or White Ants, found in Africa: extracted from Mr. Smeathman's Travels in that Country.

THE curious history of the Termites, or White Ant of Africa, has attracted the notice and investigation of almost all travellers who have visited that immense country, but hitherto in a very imperfect and unsatisfactory manner. These extraordinary animals which erect for themselves buildings of clay, twelve feet high and generally about six feet broad at the base, are distinguished, like the Bee, the Ant and other social animals, for the singular art with which they construct their habitations, which are built with great strength and solidity. They appear to subsist chiefly upon decayed timber, or wooden posts found in the villages which are deserted by the natives, and of these they will devour an amazing quantity; the reproduction and multiplication of their own species being astonishing, rapid, and multifarious. Of the species called Bellicosus, there are three orders, the working insects, or Labourers; the fighting ones or Soldiers, which do no kind of labour; and lastly the winged ones, or perfect insects, which are male and female, and capable of propagation.

These last might very properly be called the nobility or gentry, for they neither labour, or toil, or fight, being quite incapable of either, or even of self-defence. These only are capable of being elected Kings and Queens, and Nature has so ordained it they generally emigrate in a few weeks after they are elevated to this estate, and either establish new kingdoms, or perish within a day or two. When these insects attack those things which man would not wish to be injured, they may be considered as being most pernicious, but when they are employed in destroying decayed trees and substances, which only encumber the surface of the earth,

ENTOMOLOGY.

they may be justly supposed very useful. The rapid vegetation in hot climates, of which no idea can be formed in other countries, is equalled by as great a degree of destruction, from natural as well as accidental causes. So when trees, and even woods, are in part destroyed by tornadoes or fire, it is wonderful to observe how many agents are employed in hastening the total dissolution of the rest. In some parts of Senegal, the number, magnitude and closeness of their buildings, make them appear like the villages of the natives, the form of each building being like a sugar loaf. The inner part is divided into an amazing number of apartments, for the residence of the King and Queen, and is considerably larger than the others, it being constantly also in the centre of the building. The Queen, when at her full size, becomes very large, and she, as well as the King, can never possibly go out, as the entrances and passages are only just wide enough to admit the Soldiers or Labourers, of which great numbers are necessary, and who are always in the adjoining apartments, to which there are numerous side passages communicating with each other. Near these on each side are the magazines and nurseries; in these are the provisions kept, which consist of raspings of wood and the particular gums of different plants. There are also several wide galleries, which intersect the building in different directions, and the oven, or cell, which contains the Queen, is placed on level with the external ground and in the centre of the whole.

It appears that when these animals devour the posts and beams of the roof of a house, they replace the cavities which they make by a kind of clay, this, it is supposed, is to prevent the Ants from following them, and KEMPFER relates an instance of their piercing the leg of a table, then passing on by the top and down the opposite leg, without injuring several papers which were left upon it.



J.C. Whitehead, del't

T.L. Busby, sculp't

DOLPHIN.

Published by J. Stratford, Holborn, April 1, 1810.

ICHTHYOLOGY.

THE DOLPHIN.

Delphinus of Pliny. Porcus Marinus of Sibbald.

Character.—Body oblong, round, snout narrow and pro-tuberant.

THE Dolphin bears a considerable resemblance in its external form to the Porpoise, but its nose is more elongated and acute, the shape of the body also is more slender throughout, it also grows to a much larger size, and it sometimes reaches to eight or ten feet in length. The colour when alive is said to be of a bright green, spotted with white, which changes much like the Mackarel, when it expires; it preys on various kinds of fish and is said to be sometimes seen attacking and wounding even the larger kinds of Whales. The mouth of the Dolphin is amply furnished in each jaw with a double row of teeth, and it may on the whole be considered as closely allied to the Shark-species. It is said to swim in a crooked posture, something in the way described by the ancients in their works of sculpture.

The Dolphin which is herewith delineated, is from the Museum of Mr. BULLOCK, and is about three feet in length; the nose of this fish is round and sharply projecting forwards, ending in a high ridge, continued into a long fin upon the back, the belly-fin is also very long and continuous, the colour of the back is a bright green, with white spots. Along each side of the body there runs a line of a dark green colour, which forms a pleasing ornament in the appearance of the fish, and the under jaw

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of the mouth projects considerably beyond the upper part of the head, the form altogether is admirably calculated for swift sailing. Many fabulous reports have been circulated at different times, by former writers, of the attachment of the Dolphin to mankind, of their following close to the vessels, and sporting in a wanton mood to the sound of music, as if they had taken particular delight in the sound of instruments. The poet Ovid describes the excellent musician Arion, as having performed so admirably on the Lyre, that he was carried on the back of a Dolphin, safe to land, in a situation where the rest of the mariners were inevitably lost and shipwrecked. But these devices are to be considered only as the lawful fiction of the poets, who always delight to deal in the marvellous. One circumstance however, is indeed very remarkable, respecting the Natural History of the Dolphin, and which is strongly confirmed by all navigators, which is the singular occurrence of a change of colour, which takes place when removed from its native element, the whole body becoming of a bright pink colour, previous to its death.

The number of species is not at present accurately known, but it is reported that in the Atlantic Ocean several kinds exist of a size much superior to those found in the European seas, but which are difficult to preserve, from their immense size and consequent tendency to putrefaction.



VIU NA.

T. R. R. 1861

Truskavets del'

THE VICUNA.

Camelus Pacos, Linnaeus. La Vigogne, Buffon.

THE Pacos or Vicuna of South America, is one of those animals which was formerly used by the Indians as a beast of burden, as well as the Lama, which is a larger creature of a similar nature, both of them having a distant resemblance to the Camel. Its body is covered with very fine long wool which is much valued; its colour that of dried roses or a dull purple; the body and feet white: they live in vast herds, and inhabit the most elevated parts of the highest mountains of Peru, where they endure the utmost rigour of frost and snow.

One of these animals has lately arrived in London, and exhibits a curious and elegant example of this tribe of quadrupeds. It is lively and elegant in its form, and seems to constitute a species between the Antelope and the Camel, and to fill up the space which Nature has placed between these two animals, a considerable degree of confusion and difficulty has arisen with respect to the distinctions which separate this species from the Lama and the Acalpa, both of Peru. The figures having been generally very imperfect, in order therefore to acquire a greater accuracy in this instance, we have procured an exact drawing made from the live animal; and such an opportunity is not likely often to recur.

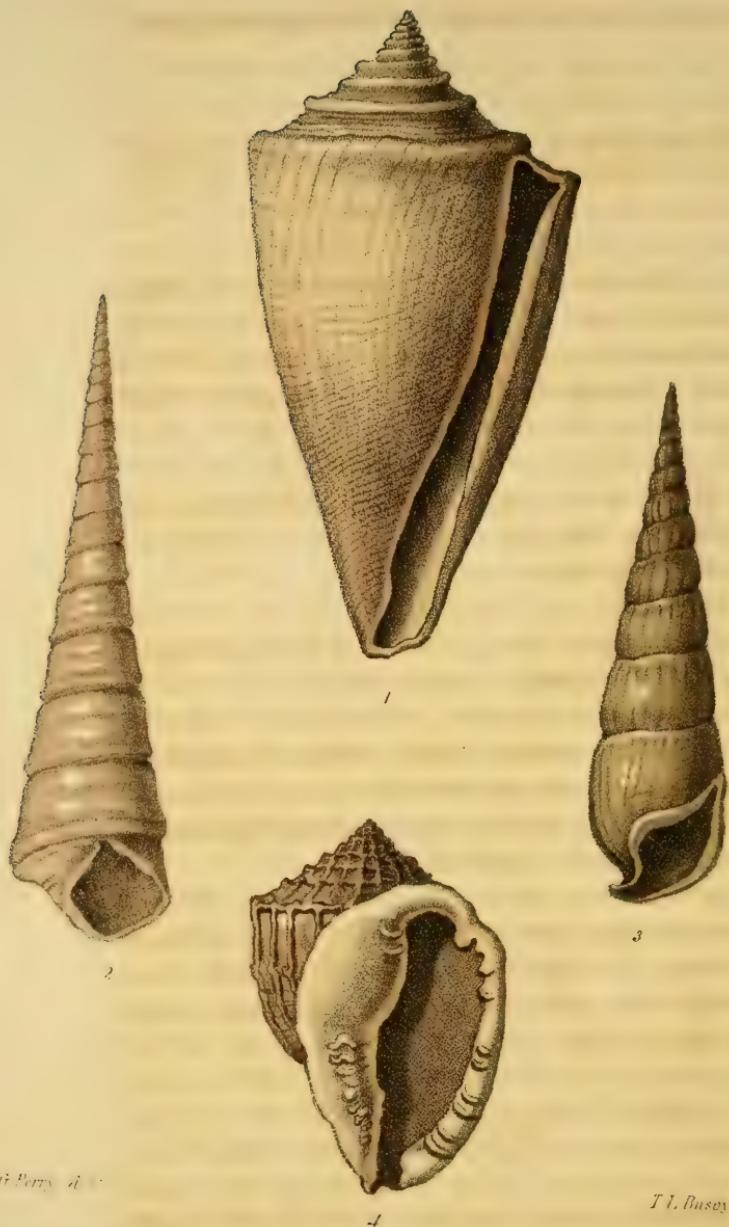
Two Lamas, the one male, the other female, have been procured for the French Menagerie of Bonaparte, and it is said they have preserved their health exceedingly well, having been previously seasoned in the warmer climate of Barbadoes; of these an engraving has been published, which differs very materially from the delineation of Buffon,

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and even all other writers upon the subject. The Acalpa seems to be an animal distinct from both the Lama and Vicuna, and is perhaps nearly extinct, as it is said to be incapable of all domestication, and has been now entirely hunted down by the Spaniards.

The manner of taking the Vicuna is singular. The animal seems to have the same dread of small waving objects, which most of the deer kind have. The Indians tie together several cords with pieces of wool or cloth hanging from them, across the narrow passes in the mountains about three or four feet from the ground ; they then drive a herd of these animals towards them, and they are so terrified by the flutter of the rags, that they dare not go forward, but huddle together and suffer themselves to be killed in great numbers.

The Acalpa is another animal of Peru, and smaller than either the Lama or Vicuna ; it appears not to have been hitherto well described, which is a strong proof how much yet remains to be cleared up, respecting the natural history of that interesting region of the globe. It is credibly reported that when the Spaniards first invaded America, they found there several curious animals, which are now either wholly annihilated by the increasing population of the more solitary districts, or by the useless cruelty of their oppressors. Amongst these were several curious kinds of Dogs and Cats, and which have been lately described in a Spanish work upon the animals of Mexico and South America, that are now supposed to be entirely extinct. This may not improbably shortly be the case with the Vicuna and Lama, their place being so amply supplied by the Horse and the Cow—animals more esteemed by all Europeans for their usefulness and docility.



Mr. Perry's

T. L. Basye

F O S S I L S .

Published by J. Stratford Holborn April 1st 1810.

CONCHOLOGY.

CLASS, FOSSILIA. ORDER, UNIVALVÆ.

No. 1. *Conus angulatus*, Shell univalve spiral, found in a deep bed of clay at Grignon, near Paris, also at Courtagnon in France; its form is elegant and taper, it differs considerably from any of the recent Cones at present found in the sea.

No. 2. *Aculea angulata*. Shell univalve spiral, the mouth, having no beak, but the base of the shell continued wholly round at the bottom.

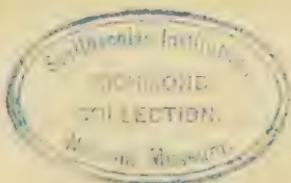
No. 3. *Cerithium lœvis*. Shell univalve spiral spire, consisting of thirteen folds or revolutions.

No. 4. *Cassis verrucosa*. Shell oval and acuminate in the spire; the cheek or columella invested with small warty protuberances, the top decussated and reticulated; the mouth opening into a small channel.

The above shells are of the kind found in different parts of France, in beds of gravel or clay, at a considerable depth in the earth, and are in the Museum of Mr. BULLOCK in London.

REMARKS.

IT has now been concluded, that the shells and animal-remains with the Madrepores and other foreign substances which have been found in almost all the dry parts



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of the surface of the earth, and in a fossil state, are properly considered as monuments which bear testimony to the revolutions which the globe has undergone during the lapse of ages; and the knowledge of these fossil-remains of marine animals, and which appear to have lived in the same places where they are at present found is become highly interesting to the Naturalist.

The investigation of this subject has acquired a higher degree of importance from the light which it is calculated to throw, as well upon the *true theory of the globe*, as upon the modifications which the living Shells undergo in the regions in which they exist.

In reality it plainly appears that the fossil shells and testaceous animals, equally fossil, and the different marine fragments found in that state, scattered over very opposite regions of the globe, upon the highest mountains, in the middle of solid continents, have been the remains of animals which have resided *in these very places*, and amongst which we perceive many which have their exact similitudes, now existing in our seas.

The quantity of these animal-remains which we find in the dry parts of the globe is found to be so enormously great, that we can only suppose them to have been brought by the movement of the waters, which have formed large banks, through the extent of many strata. Amongst these remains certain shells of a tenuity and delicacy are discovered, and still retaining their form complete. These considerations seem sufficient to some writers to prove that these fossil remains *have really lived in these very parts of the globe*, and consequently that the sea has withdrawn itself from the land.

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The interest with which we examine such objects increase greatly, especially when we endeavour to search the causes which has given rise to them; for we perceive plainly that the knowledge of fossils teaches us that the sea has (for a long time at least) sojourned upon parts of the globe, which are now elevated above the level of the sea, joining this to the other facts we find that they are retired now from the places formerly occupied, thus yielding to some slow but effectual cause, and from continuity of this cause, it is probable certain parts of the earth now known, will become hereafter in the lapse of time a basin for the sea, as these have already been, and so onwards, the present basin of the sea will find itself in some future age converted to a dry uncovered continent.

But we do not end here; the knowledge of fossils, by the different important facts which it presents will become the index of a perpetual change, although it is true, an infinitely slow one, which operating in all the climates, will relatively change all the surface of the globe.

Furthermore, amongst the fossil remains of animated nature found in Europe, there is evident proof, that these bodies could not have existed long in a climate such as that where they are now found.

The shells, of which the similitudes do not exist in our seas, but in the hotter climates, make up part of those found in our fossil mines. Thus the *Nautilus Pom-pilius* is found at Courtagnon and Gregnon which is one proof, and this is not the only one, the *Rostellaria Fissurella* is said to be found recent in the Eastern seas, (vide Martini) the *Pes Pelicani* also, and the *Turbo Clathrus* are reported (although upon a vague rumour) to be found in both the fossil and recent states, the *Cypraea Sulcosa*

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a fossil from Grignon, resembles very much the *Cypræa Costata* of Gmelin, vol. 5, 3413. The *Oliva Triatula* of Gmelin has some resemblance to the *Oliva Canalifera* of the Grignon fossils. The *Purpura Lapillus* of Courtagnon is no other than the very same shell as the *Buccinum Lapillus* of Linnaeus, a native of the English coast. The *Septa Rubecula*, of Mr. PERRY's Work on Conchology, is also supposed to be the same shell which is found in a fossil state in several museums. We know also one species of *Cypræa* found recent on the English coast, the *Cypræa Pediculus* of Pennant, this is suspected to be the same which is sometimes found in a fossil state.

The above remarks are chiefly taken from the writings of Lamarck, &c. In answer to these observations of this celebrated writer, I have only to remark that his instances are *very few* which he brings of a perfect similarity existing between the fossil and recent shells. It may also be added that upon an actual examination, many of those which he seems too hastily to have judged to be similar are found to be essentially and specifically different in form. It is therefore more rational perhaps to conclude that there are no fossil shells at all similar to the recent ones, in the specific character, though there may be some general resemblance, to the eye of the spectator, who is not precisely critical in the observation of such objects.

Mr. SOWERBY has observed, very justly, that the fossil *Nautilus*, found at Brentford, differs very materially from the recent *Nautilus Pompilius* of Linnaeus, and from all others yet known in a recent state; and no doubt similar distinctions exist in the others.

The Polypi, Madrepores, Marine Plants, and Oceanic Shells, attest to our senses and judgment very obviously, the revolutions which the surface of the earth has undergone in

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former ages. The highest mountains have undoubtedly been covered or enveloped for a certain time, by the waters of the ocean, by some great external revolution, and the sea has served no doubt as a vehicle to convey these submarine vestiges to parts, where the human mind would least expect to find such an assemblage, in beds of clay, of chalk, or limestone, and in short almost every variety of situation.

At Grignon, about seven leagues from Paris, innumerable Fossil Shells have been found in a bed of calcareous sand. At Courtagnon also near Rheims, in a sand bank of a more silicious nature than at Grignon. In Hampshire also, and the Isle of Wight, at Greenwich and Brentford numerous quantities of shells have at various times been found, inclosed in deep beds of gravel 30 or 40 feet deep.

Lamarck observes that the Fossil Shells of France and England are all of similar genera, and related to each other exactly in their form; the variety however of the French Fossils seems to be greater, several species of them have an exact resemblance in form and size, so that they seem to have been deposited by one general involution of the sea. It is very natural to suspect that they were brought from some very distant seas or coasts, and this has been indeed the general opinion of writers upon this subject, as we have no recent species in our own seas which by any means resemble them in the specific form: nevertheless many of the genera of Fossil Shells have a distant affinity to the recent kinds, at present discoverable in the Southern Seas, and which by analogy indeed may be said to prove (if such proof will be allowed) that the immense oceans of the Southern part of the World, are the depository or storehouse from whence these shells were originally driven to our northern latitudes, and there left by the retiring of the waters. These shells are scattered partially over particular

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parts of the surface of all Europe, and the Mountains, of which they form very often a material and substantial part, are evidently of a different shape externally to all others that we are acquainted with. The arrangement of form, and the shape of their summits is always alluvial or rounded, and waved with gently undulated lines, as every soft and pulpy mass would naturally be when operated upon by a fluid, and by a successive agitation of the waters of the ocean.

This idea suggests itself to the mind upon examining the different forms of the Mountains of Portsdown, and the chalk hills which are so remarkable in the Southern countries and the internal part of England, which latter have inclined, and dipping strata of rock, and which may be supposed to possess their primæval form.

These immense Masses of chalk, according to this theory, may be considered as nothing more than the alluvial remains of some violent agitation of the waters of the ocean, and which will be more fully explained in deductions drawn from a full survey of the facts which nature presents to our view.

Remarks on the English Fossils.

IN the Fossil Relique found at Willsden, Middlesex, the shells were remarkable for their form, and the fewness of the number which were found; and they were inclosed in a very solid stratum of steatite or soap rock, subsistent to bed gravel and flint stones. Several fragments of carbonaceous black wood of a fibrous texture were found with them, and several pieces of glassy *scoria and lava*, which were filled in part with air bubbles, and had evidently been at some former period in a state of fusion. The

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shells themselves had evidently been in a heated state from some subterraneous cause, previous to their being deposited by the great diluvial commotion which removed them from their original habitation. The inner substance of the shells seemed evidently to consist of an animal substance, incinerated and carbonized; and in some of the *Telliinæ* the surface was full of cracks, and discoloured in such a manner as could only happen from a sudden and violent degree of heat. These are to be considered as evident traces, in this instance, of some volcanic cause having existed at a distant period of time; and modern discoveries have confirmed the idea of volcanos being found in almost every country known at present: such is the hill of Cloud Thorpe, in Derbyshire, and of Cader Idris, in North Wales. But it is plain that volcanos are not peculiar to mountainous countries, although any mountain that is very high and conical may be suspected to be volcanic, witness Teneriffe, the Andes and Cordilleras in Peru, with many others. In Italy, which with the surrounding islands and coasts, may be called the modern *Laboratory of Volcanos*; it is frequently observed even by the evidence of the present century, that many small islands and even continents, become formed from the very sea itself by the upheaving of subterraneous volcanos, causing at the same time a subsidence in some regions from the falling in of strata, and in others the accretion of mountains and hills by the gradual deposition of their mineral products. Some great external revolution of the waters must however be supposed once to have existed, to account for the phænomena of vegetable and animal remains found in continents now so far distant from the Sea. Perhaps the inclination of the earth's axis to the plane of its orbit, whether it happened *suddenly* or *gradually*, may have caused such a change in the *direction* of the oceanic and equatorial waters of the ocean, as to make them desert some regions, leaving them capable of subsidization and vegetation for the

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purposes of animal and vegetable life, and invading other regions more exposed to their resistless and overwhelming force. The Flood however appears to our minds from all evidence we can derive from facts and reasoning, to have been attended with a sudden and violent impetus of the greater oceans, from some cause which afterwards gradually subsided.

If ever the axis of the Earth became suddenly altered to its present inclination by the attraction of a comet, this would at once account reasonably and theoretically for the great and awful effect. For the equatorial and southern waters which swell gradually out from the centrifugal force of the earth in its diurnal motion, would be suddenly impelled forwards, rush over and cover the whole North West continent of Europe, and certain parts of Asia and Africa. Perhaps its force might even reach over the continent of America. If the earth with a constant diurnal motion keeping this degree of inclination in its axis, went on regularly in its annual orbit, the waters would again retire from those Continents which it had invaded and enveloped, and the surface of the earth would be renewed and re-animated from those parts which had all along remained untouched and unbroken. The parts of the earth which would escape the force of such an overwhelming change of the waters, being most *distant from the Equator*, would be the whole of the large continent of New Holland, and some parts of Asia, Africa, and America, and it will be observed that no fossils are found in New Holland, nor any plants, or animals, or shells similar to any other part of the world. But in respect to those plants and animals which are found fossil in the mountains of Europe, of Asia, and of America, partially in different districts of these regions, these reliques are asserted to be *now living* in the Equatorial regions,

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viz. the Elephant, the Ceylon and Gangetic Crocodiles, and we suspect the *Nautilus Pompilius*, a remarkable shell fish (distinguished from all others by its peculiar structure) the *Chætodon Equatoria*, and amongst others of the vegetable tribe, the Mourful Tree (a peculiar plant well described by Jussieu) the Banana and the Bamboo. To these may be added the *Triplex* and *Septa* tribes of shells, with all the impressions of fern and submarine plants, *Echini*, &c. which in the living state are foreign to our northern regions, and which all writers do agree, from analogical reasoning, came from a southern and warmer climate. The Southern seas and the Equatorial regions are so extensive as to account fully for the immense quantities and varieties of fossil shells, plants, and marine exuiræ, which have at various times been discovered. Thus it will be found that the best opinion we can form of the great changes we have observed arises either from the general action of volcanoes, resulting from the chemical changes and decompositions of Nature, or from that great diluvian revolution which was owing to the flood, or perhaps from both united. Nor can we suppose these changes to be produced from any gradual subsidence of the ocean, for if so the effects would be traced in a more gradual analogy and progression, and not in such sudden and opposite extremes.

The circumstance of Fossil Shells being found in a burnt state, and which is not unfrequent in those specimens which have been found in the mountains of the Tyrol and of Hungary, are a strong proof that volcanoes did exist before that time. Nor is the probability denied by modern philosophers, that these eruptions are in general occasioned by a subterraneous communication of the sea, the latter insinuating itself through the cavities and strata of the earth, and meeting with inflammable substances. A general deluge

CONCHOLOGY.

may possibly be considered therefore as a means of at once diminishing this propensity to the formation of volcanoes, and that in the long course of future ages the number and violence of these eruptions will be gradually diminished, until nature at last shall rest in undisturbed repose. The general direction and form of the leading continents of the former earth, seems to have been much the same in their great outlines, as at the present period, all partial deviations of the coast and the efforts of volcanoes, have in general a peculiar character, operating in a very small proportion or scale. The great catastrophe which itself must be supposed to be partial, if produced by the waters of the ocean, might most probably be occasioned by the sudden inclination of the earth's axis, bringing for a certain time an equatorial flood over a great part of the globe. The objection of a modern French writer remarks that these fossil remains are so delicate in their texture and so exquisitely well preserved, that they could not have been violently hurried by the waters into their present situation, but must have always existed there under a different climate, is unreasonable and contrary to natural appearances.

For the greatest part of these are really broken and worn away by some violent pressure, as is evident by their appearance and by the circumstances of fragments adhering often in such a way to the Fossil animal body, still preserved as could only have happened from the circumstance of the animal being flexible and alive at the time.



TL Busby. sculp^t

GLORIA MARIS.

Published by T. Stratford Holborn. April 1st 1810.

CONCHOLOGY.

CONUS, GLORIA MARIS.

Generic Character.—Shell spiral, oblong, spire short, no beak, the mouth very long and narrow, ending at the base in an open trench arcuated, the whole form of the shell cone-shaped and pointed

The shell called the *Gloria Maris*, on account of its dazzling beauty and the symmetry of its delicate proportions, is distinguished no less for its great rarity and the proportionably high price which it generally brings from connoisseurs. The spire consists of several rings, forming a gradual tapering summit, the body is slightly rounded, as well as the cheek of the mouth, the inside of which is white. The body is of bright olive brown, variegated with white angular spots placed irregularly; the larger marks are of a chequered pattern of a dark rich brown, of the shape of an oblong square. As these approach to the bottom of the shell, they are gently turned towards the inside, with the most pleasing mixture of all the different tint and mixed with grey, which also occurs irregularly in different parts of the exterior surface.

That superb shell which was once in the collection of the late **DUCHESS of PORTLAND**, was we are informed, sold to **LORD TANKERVILLE**, whose noble collection of shells it now adorns. Another we have observed in the British Museum, and these are, we believe, the only two of the *Gloria Maris*, now existing in London.

When the specimens are imperfect from age, the colours are much paler, but the peculiar shape of the spire and summit will always be a sufficiently characteristic mark

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to distinguish it from others of its family. By referring to the Fossil plate in our present number, the reader will perceive the similitude generally existing between the Fossil and recent shells, and how far the difference of form in these two instances, separates and sets them apart although of the same genus.

The *Conus* has a considerable analogy to the Genus *Volutella*, lately established and commonly called the Devil Shell, but the latter has a much wider mouth, and also a fluted columella, of the shape of a small screw.

Notwithstanding the great and numerous variety of species of this kind which have been described, new specimens are almost daily to be met with from the importations of the sea whalers and others, for almost every Island in the South sea seems to have its own peculiar shells, distinct from all others at present known to Conchologist.



T. I. Bushby sc.

Cruikshanks del

KOAL.O.

Pub. by J. Stratford. May. 1810

KOALO, OR NEW HOLLAND SLOTH.

Generic Character.—*Bradypus* or *Sloth*, having five toes on each of the fore feet, and four toes on each of the hind feet; four cutting teeth in front; the body elongated, round, and covered with fine wool; the ears bushy and spreading, tipped with dark brown behind; the head flattened, round; the legs short and depressed, each foot armed with long crooked prehensile claws; the general colour cinereous, mixed with a brown tint which predominates on the back; the nose flattened and incurvated downwards: the form of the molares is unknown.

THE *Bradypus* or *Sloth* is one of those animals which are in some degree allied to the *Bear*, the formation of the legs and shoulders in a great measure resembling the latter. From this analogy of shape and character, the animal which has lately been discovered in the East Indies, and has been described by *Bewick* as the *Ursine Sloth*, has excited in the minds of different philosophers, an expectation of a new and more correct arrangement of their genera and species. In this hope however they have hitherto been disappointed, and we shall most probably have to wait until farther discoveries in *Natural History* shall enable us more accurately to define, those specimens which we at present exhibit. Even the different species of *Bears* are not yet thoroughly understood, those of Europe not being properly distinguished or described; but it is a point which the French writers are at present endeavouring to clear up and make more systematical.

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Previous to a more particular description of the present animal, it may be necessary to observe, that although it does not agree entirely, in the form of its feet, with either the three-toed or two-toed *Bradypus*, which are found in other countries, yet the similitude is so strong in most peculiarities, which it possesses, that the naturalist may perhaps be considered as fully justified in placing it with the Genus *Bradypus* or Sloth. It is necessary to repeat, that this animal, of which there are but three or four species known, has received its name from the sluggishness and inactivity of its character, and for its remaining for a long time fixed to one spot. It inhabits woody situations, where it resides amongst the branches of trees, feeding upon the leaves and fruit, and is a solitary animal rarely to be met with. It is armed with hooked claws and the fore feet are in general longer than the hinder ones: some of the species of the *Bradypus* have a tail, others are without.

Amongst the numerous and curious tribes of animals, which the hitherto almost undiscovered regions of New Holland have opened to our view, the creature which we are now about to describe stands singularly pre-eminent. Whether we consider the uncouth and remarkable form of its body, which is particularly awkward and unweildy, or its strange physiognomy and manner of living, we are at a loss to imagine for what particular scale of usefulness or happiness such an animal could by the great Author of Nature possibly be destined. That the solitary and desert wastes of that immense country should be animated by creatures of so different a texture and appearance to any hitherto known, no Naturalist, however sanguine in his expectations, could have easily suspected. Many of the animals that reside in the pathless and extensive forests of New Holland, are furnished with a flap or appen-

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dage, being a winged membrane covered on the outside with hair like the rest of the body, and reaching in a square form from the toes of the fore leg to the hinder one. By the spreading out of these, they can descend, in the manner of a parachute, from branch to branch, but at the same time they have no means to fly straight forwards. Of these families are various species of *Didelphis*, *Sciurus volans*, *Opossum*. But it is not to be supposed that all the animals which reside amongst the branches of the trees are armed with these useful appendages of motion, for the *Koalo* is wholly without them and seems to have no other means than its claws, which are indeed powerful and deeply hooked for the purposes of climbing or descent.

The *Koalo* when fully grown is supposed to be about two feet and a half in height. [Mr. BULLOCK possesses two in his Museum, the smallest of these, it is imagined, is a young one.] The predominant colour of these animals is a bright brown or snuff colour, but suddenly growing pale towards the hinder parts or haunches. This animal, like the *Capibara* and some other quadrupeds, is wholly without a tail, and indeed the possession of such an appendage, in the mode of life which it enjoys, would be of little use, but rather an annoyance, as it is sufficiently defended from the flies by the length and thickness of its furry skin. The ears are dark coloured, bushy and spreading; it has four teeth projecting in front, like those of the *Rabbit*; but how the grinders are situated or what is their number is not hitherto known: The nose is rounded; the fore legs and underside of the belly pale and ferruginous; the eyes are sharp and sparkling; each fore foot has two thumbs and three fingers, the latter conjoined; and the hinder foot has two thumbs and two fingers, the latter conjoined; which singular combination assists them very materially in clasping hold of the branches of the trees.

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The Kaolo is supposed to live chiefly upon berries and fruits, and like all animals not carnivorous, to be of a quiet and peaceful disposition. Its only enemies must be the Racoons and Dwarf Bear of that country, and from which it can easily escape by climbing ; and its appearance at a small distance must resemble a bunch of dry and dead moss. As there are no kind of Tygers or Wolves known as yet, except the Australasian Fox should be reckoned as a Wolf, the smaller animals must be upon the whole more secure than in most other countries.

The Koalo has more analogy to the Sloth-tribe than any other animal that has hitherto been found in New Holland, the eye is placed like that of the Sloth, very close to the mouth and nose, which gives it a clumsy awkward appearance, and void of elegance in the combination. The motions of such a creature being slow and languid, and the back lengthened out by the continual hanging posture which they assume ; they have little either in their character or appearance to interest the Naturalist or Philosopher. As Nature however provides nothing in vain, we may suppose that even these torpid, senseless creatures are wisely intended to fill up one of the great links of the chain of animated nature, and to shew forth the extensive variety of the created beings which God has, in his wisdom, constructed.



T. L. Bruyls. sc.

et J. Verhey del.

S. H. & F. O. L. S. &.

Published by J. Stratford, Holborn, May 1. 1820.

ICHTHYOLOGY.

Genus—SYNGNATHUS, or HIPPOCAMPUS.

Species—FOLIATUS.

Character.—Animal having a head formed like a Horse, the body jointed like armour, the fins placed on a pedicle irregular in their number and position, no caudal or terminating fin to the tail.

THE Hippocampus, or Sea-horse, has been always placed by the most eminent Naturalists with the Syngnathus, which last is to be considered more strictly as a fish, than the former, which is without a caudal or tail-fin. If we were to speak with more exactitude we might, not improperly, describe the Hippocampus as a marine insect, forming a distinct tribe by themselves. They have a singular resemblance in their head and neck to a Horse, and the tail may be compared in some degree to the idea which we have of a Mermaid, the nose consists of a long trunk and the mouth is small and placed at the end, the body is not covered with scales, but with a jointed kind of armour, which is divided into pentagonal plates on the back and sides, the tail is pointed at the end and divided in a similar manner. In the specimen before us the fins are shaped like leaves and are placed upon a membranaceous projecting base or prop, two and two; there is also a crest on the top of the head, and a single fin standing upon the neck; but the most remarkable fin is that which is placed on the back, as it is of a different form to the others, being oblong and placed near the commencement of the tail. This singular animal is a native of Botany Bay and is found in the seas adjacent to that curious country, it feeds in the shallow bays and coasts upon small

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marine insects. The Hippocampus which is found in the West Indies, differs considerably from the above in its general form, having a shorter trunk and body, and seems to swim in a more erect form. In contemplating the strange and eccentric arrangement of shapes in this singular animal, we cannot help supposing that it is possible the idea of a Dragon or Cockatrice might first have been derived from such a source, its novel and romantic outline being well calculated to impress the mind of the Painter with such an image.

The size of the Hippocampus when alive is about seven or eight inches, but there is a difference in this respect, in the male and female. The colour is of pale amber, shaded with brown, but in its living state, is said to be of a beautiful bright blue colour on the back and sides.

This circumstance is confirmed by General DAVIS, a gentleman whose zeal for the study and advancement of Natural History has kindly furnished us with several very useful observations.

The fish called Syngnathus, or Pipe Fish, we cannot help considering, as decidedly distinct from the proper Hippocampus, to be divided into a separate genus, and we regard the different form of the tail already described as quite a sufficient reason.

Other Naturalists, however, are of opinion, that they may both be included under the general term of *Acus*, our reason for differing from them will be seen in the Generic Character at the head of the Chapter.

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Continuation of the History of the African Ants.

THE first object of admiration which strikes the spectator upon opening their hills, is the behaviour of the soldiers. If a breach be made in their building with a hoe or pickaxe, in a few seconds a soldier will run out and walk about the breach, as if to see whether the enemy is gone, or what is the cause of the attack. He will sometimes go in again as if to give the alarm, but most frequently in a short time is followed by two or three others, who run as fast as they can, who are soon overtaken by a large body who rush out as fast as the breach will permit them, the number increasing as long as any one batters the building. It is not easy to describe the rage and fury they shew; in their hurry they frequently miss their hold and tumble down the sides of the hill but recover themselves as quickly as possible, and bite every thing they run against. On the other hand, if they are left without interruption, they will in less than half an hour retire into the nest, as if they supposed the wonderful animal that damaged their castle was gone beyond their reach. Before the soldiers are all gone in, the labourers come forth, all in motion, and hastening towards the breach every one with a burthen of mortar in his mouth ready tempered. This they stick upon the breach as fast as they come up, and although there are thousands of them there is no hurry or confusion, but a regular wall gradually arises, filling up the chasm. Here and there a solitary soldier will be seen, who saunters about but never touches the mortar either to lift or carry it, now and then he will raise his head and with his forceps beat upon the building as if to encourage the others, upon which a loud

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and general hiss takes place from the labourers, who seem to hasten at such signal, redouble their pace and work as fast again. If however the assailant should renew his attack upon the building, the scene suddenly changes, a loud hiss takes place and the labourers suddenly withdraw into their pipes and galleries, in a moment they all vanish and the soldiers come forth as numerous and vindictive as before. On again ceasing with the attack they retire and the labourers once more come forth peaceably to their work. The royal chamber, where the King and Queen reside, is centrally placed and large enough to hold many hundreds of the attendants, several of these serve the purpose of nurses, for the depositing of the infant eggs which are laid by the Queen. The marching Termites are not less curious in their order than those above described, and they are larger and scarcer, they live in holes of the ground about four or five inches wide, from which they issue in vast numbers and afterwards divided into two streams or columns, twelve or fifteen abreast, and crowded like sheep, going straight forward in a direct course without deviation to the right or left. The soldiers, who are larger than the others, place themselves on each side of the path and stimulate the Ants to move forwards by a striking noise, which the army return by a loud and general hiss, and by an increased pace and motion. The *Œconomy* of Nature is wonderfully displayed in the species which reside under ground, which have no eyes until they arrive at a more perfect and winged state, at which time they become furnished with organs suitable to their change of situation.

The nests are formed of a dark brown clay, which when burnt affords a fine and clear red brick. Within, the whole building is pretty equally divided into innumerable cells of irregular shapes, sometimes they are quadrangular or cubic and sometimes pentagonal; but often the angles

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are so ill defined, that each half of the cell will be shaped like the outside of that shell which is called the Sea Ear.

Each cell has two or more entrances, and as there are galleries communicating with passages erected under ground on each side, they have in a great measure a certain place of escape to which they can retire when their principal house is destroyed. But to return to the Cities from whence these extraordinary expeditions and operations originate, it seems there is a degree of necessity for the galleries under the hills being thus large, being the great thoroughfares for all the labourers and soldiers going forth or returning from business, the fetching of clay, wood, water or provisions; and they are certainly well calculated, for the purposes to which they are applied, by the spiral slope which is given them, for if they were perpendicular the labourers would not be able to carry on the building with so much facility, as they ascend a perpendicular with great difficulty, and the soldiers can scarce do it at all. It is on this account that sometimes a road like a ledge is made on the perpendicular side of part of the building, within the hill, like those roads which are sometimes cut out of the sides of mountains, which would be otherwise inaccessible, by which and similar contrivances they travel with great facility to every part.

It has been observed before that of every species of Termites there are three orders, of these the working insects or labourers seem to be most numerous, and in the *Termes Bellicosus* there seems to be about one hundred labourers to one soldier or fighting insect. They are in this state about a quarter of an inch long, and from their external habits and fondness for wood have been not inexpressively called Wood Lice, by which name the French know them. They resemble them it is true very much at a distance, but they run as

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fast or faster than any other insect of their size, and are incessantly bustling about their affairs.

The second order, or soldiers, are of a different form, having undergone a total change, they are larger than the labourers, being generally half an inch long and are supposed by some Authors to be the males. The jaws of the mouth are shaped like two very sharp awls jagged, and are capable of piercing and wounding their enemies, being as hard as a Crab's claw and placed in a strong horney head.

The third order is a winged insect, and differs from the former one in having large brown transparent wings, with which at the time of emigration it flies in search of a new settlement. In the winged state they are much enlarged in size, being now seven tenths of an inch in length. They are also furnished with two large eyes placed on each side of the head and very conspicuous, which if they have any before are not easily to be distinguished. Probably in their two first states, their eyes, if they have any, may be small, like those of the Moles, for which as they live a great part of their time under ground, they have little occasion, and are of course undistinguishable. Not only all kinds of Ants, birds and carnivorous reptiles, as well as insects, are upon the hunt for the Termites, but the inhabitants of many parts of Africa use them as food, made into a pleasant tasted pastry, with an admixture of flour.

The most remarkable circumstance in the Queen, is the great enlargement of size which takes place in the abdomen during the state of pregnancy, during which they are expanded to the length of three inches, like an oblong ball of white Cotton. This circumstance also takes place in the *Pulex Penetrans* of LINNÆUS, commonly called the Jigger of the West Indies, and also in the different species of *Coccus* or Cochineal Insec

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The Termites Arborum, those which build in trees, frequently establish their nests within the roofs and other parts of houses, to which they do considerable damage if not early extirpated.

The large species are however more difficult to be guarded against, since they make their approaches chiefly under ground, descending below the foundations of houses and stores at several feet from the surface, and rising again, either in the stores or entering at the bottoms of the posts, of which the sides of the buildings are composed, boring quite through them, following the course of the fibres to the top, or making lateral cavities as they proceed.

While some are employed in gutting the posts, others ascend from them, entering a rafter, or some other part of the roof. If they once find the thatch, which is their favorite food, they soon bring up wet clay and build their pipes and galleries, through the roof in various directions as long as it will support them. In the mean time the posts will be perforated in every direction, as full of holes as that part of a ship's bottom which has been bored by worms, the fibrous and knotty parts being left to the last. The sea worms, so pernicious to shipping, appear to have the same use and office allotted them which the Termites have on land. They appear to be the most important beings in the great chain of creation, and pleasing demonstrations of that infinitely wise and gracious Power which formed the whole in harmonious order. If it was not for the rapacity of these and such other animals, tropical rivers and indeed the ocean itself would be choaked up with the bodies of trees annually carried down by rapid torrents, and as many of them would last for ages, would be productive of evils, of which we can hardly form any adequate idea.

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They sometimes in carrying on their attacks, discover (although it is difficult to conceive how) that the post has some weight to support, and then if it is a convenient track to the roof, they bring their mortar and fill up all or most of the cavities, leaving the necessary roads, and as fast as they take away the wood, replace the vacancy with that material. This they work together more closely and compactly than any human art or strength could ram it, and when the house is pulled to pieces to examine the posts, the greater part is found transformed from wood to clay.

These singular insects are not less expeditious in destroying the shelves, the wainscot and other fixtures of a house than the house itself, they are particularly fond of Pine boards and Fir, which they excavate in a wonderful way, carrying away the inside and leaving only a paper-like surface, which will not weigh more than two sheets of pasteboard. On these accounts the inhabitants are careful to set their chests and boxes on stones or bricks so as to raise the bottoms above the ground, which preserves them from being so readily discovered by these insects, and also the numerous tribes of Cockroaches, Centipedes Millepedes, Scorpions and other noisome insects. Madam Merian describes a kind of Ant in the East Indies, which is smaller than the Termites, which strip the trees of their leaves, which they cut into a round form similar to a Parasol, and are seen travelling along their roads, each with one of these small coverings in his mouth, from whence they received the name of the Parasol Ants. There is also another which is found in Tobago which is highly mischievous to wooden buildings, but of which no complete description has yet been imparted by any writer upon Natural History.





G.P. del't

T. L. C. sculp't

BULIMUS ZEBRA.

Published by J. Stratford, Holborn May 1, 1810.

CONCHOLOGY.

Genus—**BULIMUS.** *Species—BULIMUS ZEBRA.*

Character—Shell univalve, spiral, the spire and body gibbous, the summit mamillary or rounded, having no beak or rostrum, the cheek joined to the base of the columella by an undulated curve, the form of the left side of the mouth arcuated.

THE genus *Bulimus* has been by some writers upon Conchology placed with the *Bulla* or *Buccinum*, in the form of the spire and body, however, there is a striking difference, sufficient to distinguish it compleatly from the former. The genus *Bulla* has no spire protruding externally, but its revolution is involved or included internally, and the *Buccinum* is remarkable for a protuberant band, which is thickened and twisted upon the hinder part of the rostrum.

In the *Bulimus* the base of the shell is wholly joined and has no open cavity, except in front, and is therefore to be considered as wholly joined to the columella and body by a gradual rounding, forming a pleasing serpentine line. The internal surface of the mouth is grey undulated with darker shades, the outside of the shell is richly striped with purple, brown and yellow, and on the underside the body is relieved by a rich blue contrasted by gold colour.

The contrast of the colours in the specimen at present to be described, is rich and harmonious, it is moulded by the most graceful forms in Nature, a gently swelling oval predominates throughout the whole and is charmingly varied on the opposite sides of the shell. The spire is of a pale amber shade at the top and is ornamented in its differ-

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ent folds with lines of a bright gold colour running round each division. It is a native of the South Seas and of the Islands of New Zealand, and is much valued by collectors for its rarity and elegant form. The substance of the shell is thin and bears some resemblance to that transparent appearance which is natural to the *Helix*, the *Cyproea*, and the denser shells, being distinguished by a superior hardness and firmness of texture and also capable of a higher polish upon their surface. The *Bulimus* genus contains many pleasing varieties, amongst which the minuter kinds that have lately been discovered in the neighbourhood of New Holland and Botany Bay, exhibit a most striking and curious tribe of shells, highly worthy of farther investigation to the Naturalist, and in all which the analogy of the general form is wonderfully preserved. The above is delineated from a specimen in Mr. BULLOCK's Museum.

The genus *Melania* differs from the *Bulimus* in having a thick reflexed margin surrounding the whole of the mouth and a different colour to the rest of the shell, in other respects the form and character is very similar and not easily to be distinguished from the above.



Drawn & Engr'd by T.L. Busby

MILITARY MACAW.

Pub. by J. Bradford, May 1830

ARA MILITARIS; OR MILITARY MACAW.

Character—Bill hooked, prehensile, square shaped, blunt; the under mandible closing into the upper part of the bill; the cheek covered by a circular naked membrane surrounding the eye; neck and upper coverts of an olive green, the back and other parts blue; the tail longest in the middle, cuneiform and spread out.

THE elegant and stately bird which we have selected for the present subject of observation, is of the Parrot-tribe, and is one of those singular species lately discovered in New Holland. Its form is graceful and commanding, and it has a considerable resemblance, in its general expression of character, to the majestic Eagle.

The present extended state of navigation and commerce having opened to our view, the knowledge of the most distant islands and climates, has increased in an amazing degree our numbers of the Parrot-tribe.

The circumstance of the membrance of the bill resembling that of a Vulture, and alluded to in the generic description of the Ara, leads us to admire the analogy of Nature, and at the same time a considerable agreement exists in the bills of this genus of birds, with several of the Toucan-tribes.

The Parrot seems to have been little known to the Ancients, and is only slightly mentioned by Aristotle and Onesicrites; and the Green Parroquette with a red neck, is

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said to have been the original bird, first brought to Europe, and found to have the curious faculty of imitating the human voice. The Parrot is distinguished by the roundness of the head and bill, from almost all other birds, also by the delicacy of his constitution, which cannot brave with safety the rigours of a Winter climate, however, by domestic attention he is enabled to endure the severity of the European Winter, and to repay by affection and sympathy, the care and regard of his keeper.

The Military Macaw is distinguished chiefly by the following colours. The crown of the head is of an olive green, the wings of the same colour, the tail of a pale blue tint shaded on the top with streaks of maroon red, on the upper bill there is a small round tuft of red feathers projecting forwards, the bill and feet are of a cinereous or Ash colour; the whole bird having much the appearance of the German military uniform, from which circumstance it not inappropriately derives its distinctive name.

W O M B A C H .

Published, June, 1850.



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*Genus—OPOSSUM. Species—WOMBACH; or,
OPOSSUM HIRSUTUM.*

Character.—Five cutting teeth in front, next to which two canine teeth and eight grinders; body having a pouch for the young; the tail short, concealed under the furry skin; the fore feet having five hooked toes, the hind feet only four toes.

THE Wombach is a newly discovered animal from Botany Bay, and on many accounts highly deserving the attention of the Naturalist. He is a thick short-legged animal, rather inactive in his motions, and of the size of a turnspit dog. His figure and movements, if they do not exactly resemble those of a bear, at least strongly remind us of that creature. His length from the tail to the nose is two and a half feet; the head seven inches; the tail only half an inch; the hair is coarse and about an inch and a half long, and thickest upon the loins and rump. The colour is of a light sandy brown, varying in its shades, but darkest along the back. The head is large and flattened, and when looking at the animal's full face, seems to form nearly an equilateral triangle, any side of which is about seven inches and a half; the hair lies in regular order upon its face, as if it were combed, with its ends pointing up like radii, from the nose as its centre. The mouth has whiskers all round, as also has each cheek, and the nostrils form two distinct cavities in front, placed near to the mouth, which is short and small. The fore legs are very strong and muscular, their length to

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the sole of the paw is five inches and a half; the hind legs are less strong and muscular than these, and their length is also five and a half inches. In size the sexes are nearly the same, but perhaps the female is to be considered as being rather the heaviest.

The Wombach seems to live generally in a loose sandy soil, burrowing in the ground and concealed under the bushes, near the foot of the hills at Port Jackson. It feeds upon grass and roots, which it scrapes up with its claws, and is of a perfectly harmless and inoffensive disposition; if, however, violently offended, or teased, it will snap at the person who provokes it. It has shewn frequently symptoms of docility and affection to its keeper, and will beg for food sometimes, by placing one its fore feet against the knee in the manner of a lapdog. This circumstance seemed to indicate, that with kind treatment, the Wombach might soon be rendered extremely tame and friendly, and probably affectionate; but let his tutor beware of giving him provocation, at least if he should be full grown. The Wombach has also been found in Furneaux's Islands, in the South Seas, also at Van Diemen's Land; and according to the account given by the natives, the Wombach of the mountains is never seen during the day, but lives retired in his hole, feeding only in the night; but that of the islands is seen to feed in all parts of the day. The country which these animals inhabit, is in general very destitute of vegetation; it is therefore probable that the grass or leaves which they eat, may by no means constitute the whole of their food; but that they may also devour some of the smaller reptiles, which would serve to strengthen the supposed analogy they have to the hog species, which are well known to be graminivorous, as well as carnivorous, having their stomachs appropriated for that sort of nourishment.

We shall conclude our description of this curious animal with the following account of the taking of a live one, as mentioned by Mr. BASS, in the Second Volume of **COLLINS**'s Account of New Holland:—"The Wombach has not any claim to swiftness of foot, as most men could run it down. Its pace is hobbling or shuffling, something like the awkward gait of a bear; but it bites hard, and is furious when provoked. It was in such circumstances only that I ever heard its voice, it made a low cry, between a hissing and a whizzing, which could not be heard at the distance of more than forty yards. I chaced one of them, and with my hand placed under his belly, suddenly lifted him off the ground without hurting him, and laid him upon his back along my arm like a child. It made no noise, nor any effort to escape, not even a struggle. Its countenance was placid and undisturbed, and it seemed as contented as if it had been nursed by me from its infancy. I carried the beast upwards of a mile, and often shifted him from arm to arm, sometimes laying him upon my shoulder, all of which he took in good part; until being obliged to secure his legs while I went into the brush to cut a specimen of new wood, the creature's anger arose with the pinching of the twine; he whizzed with all his might, kicked and scratched furiously, and snapped off a piece from my jacket, with his grass-cutting teeth. Our friendship was here at an end, and the creature remained implacable all the way to the boat, ceasing to kick only when it was exhausted. Besides **Furneaux**'s Islands, the Wombach inhabits, as has been seen, the mountains to the westward of Port Jackson; in both these places its habitation is under ground, being admirably formed for burrowing, but to what depth it descends, does not seem to be ascertained. His food is not well known, but it seems probable that he varies it, according to the situation in which he may be placed. The stomachs of

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such as I examined, were distended with coarse wiry grass ; and as well as others, I have seen the animal scratching among the dry ricks of sea weed thrown up upon the shores, but could never discover what he was in search of. Now the inhabitant of the mountain can have no recourse to the sea shore for his food, nor can he there find any wiry grass of the islands, but must live upon the food that circumstances present to him.

“ These islands, besides the Kangaroo and Wombach, are inhabited by the Porcupine Ant-Eater; a Rat with webbed feet ; Parroquettes and small birds unknown at Port Jackson, some few of which were of beautiful plumage. Black Snakes, with venomous fangs, were numerous upon the edges of the Brush. The rocks towards the sea were covered with Fur-seals of great beauty. This species seemed to approach nearest to that named, by naturalists, the Falkland Island Seal.

“ In point of animated life, Nature seems (says Mr. **Bass**) to have acted so oddly with this and the neighbouring islands, that if their stores were thoroughly ransacked, I doubt not but the departments of Natural History would be enlarged by more new and valuable specimens than could be acquired from any land, many times their extent.”—
(From a specimen in Mr. **BULLOCK**’s Museum.)



Drawn & Engraved by T. H. Lowe.

NEW HOLLAND CRANE.

ORNITHOLOGY.

Genus—ARDEA; or, CRANE. Species—ARDEA RUBICUNDA; or, RED-HEADED CRANE OF NEW HOLLAND.

Character.—Bill elongated, straight and pointed; head bare of feathers on the sides; body oblong and oval; neck very long; legs tall, and the thighs imperfectly covered with feathers.

THE Crane, Heron, Stork and Curlew, form a large part of the natural division of birds, called the Waders; or, *Grallæ*: to these the present undescribed bird, from Botany Bay, is closely assimilated in its form and external habits, and may be very properly referred to the *Ardea*; or, *Crane*. Its natural food is supposed to consist of fish, and various aquatic reptiles, for which it searches, with much patient care and attention, on the banks of stagnant pools and rivers in the manner of our own English Heron. For this purpose its long and taper legs are admirably calculated, and its head being placed aloft, can view to a considerable distance amongst the reeds and long grass, those objects of which it is in pursuit.

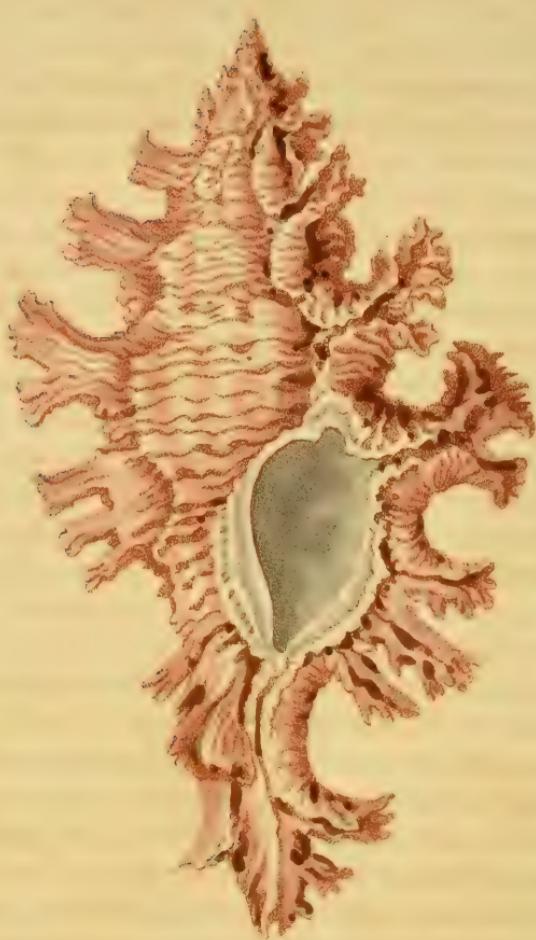
The *Ardea Rubicunda* has a very considerable resemblance to a bird described by Mr. EDWARDS, in his Account of Foreign Birds, under the name of the Greater Indian Crane; but some material differences occur in the feet and crest. In the present bird there is certainly an appearance of a web between each of the toes of the foot, which in the drawing of Mr. Edwards, does not at all appear. He also exhibits it with a tuft of black feathers projecting from the back of the head all round the neck, which in this specimen is quite different.

ORNITHOLOGY.

The small and taper form of these singular birds gives them a facility of motion, suited to their situation, and which they could not otherwise attain; how inconvenient, unsuitable and heavy would the splendid tail of the Peacock be found, if we were to suppose it changed for that of the Crane? or if he had the short legs of the Woodpecker or Dotterell, how ill suited would he be to procure his necessary food?

It is observable, that in their flight these birds always contract their long neck, into a crooked line, doubling it towards their body, in order to balance it through the air, and that the action of their wings is more slow and majestic than that of most other birds. If it should so happen that no food should offer itself in the fresh water marshes or stagnant pools where they usually resort, they flock sometimes in immense numbers to the sea shore, at which time their flesh becomes rancid and disagreeable. Nature has so provided for them, however, that they are able to endure the wants of hunger for an amazing length of time, otherwise in their long periodical journeys they would be wearied and exhausted from the length of fatigue.

The Red-headed Crane, measures about five feet and a half in height, and may be considered as the tallest of the Crane-kind at present known; from wing to wing it measures six feet three inches; the general colour cinereous; the pinion, tail, and chin are black; the legs of a dark brown, and the bill of an orange colour; the back of the neck has a red carunculated skin, without feathers, and in the middle thereof a circular patch of a brown colour; the form of the body ovated and oblong; and the tail ends abruptly in a sudden recurvature. It differs entirely from the *Ardea Antigone* of Linnæus.—(From a specimen in Mr. BULLOCK's Museum.)



1877 del

J. B. Brady sculp.

TRIPLEX FOLIATUS.

Stratified June 1870

CONCHOLOGY.

Genus—TRIPLEX. Species—TRIPLEX FOLIATUS.

Character.—Shell spiral univalve; the body, spire, and beak invested with three septæ or membranaceous divisions, formed into tubercles and spines; the mouth round and carunculated, colour varying from a reddish brown to a pale rose colour.

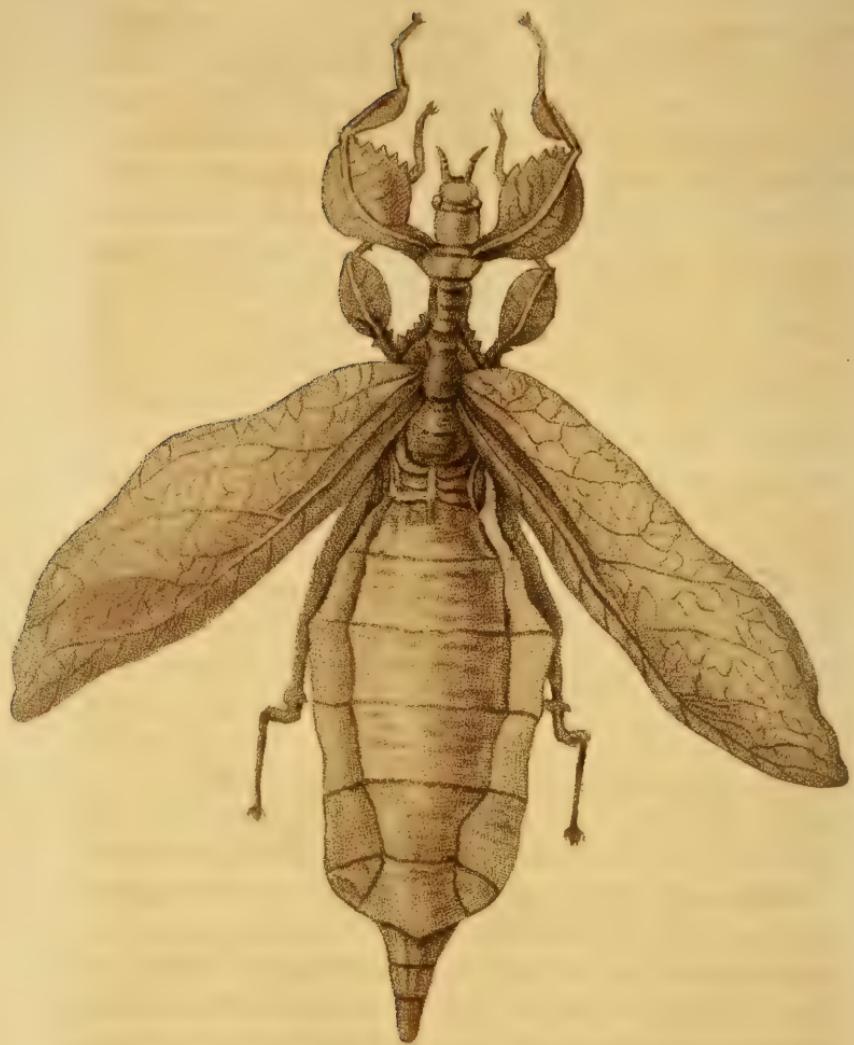
IT has been very justly remarked by different Conchologists, that the external form of Sea Shells (and indeed of the Land Shells also) affords the only certain criterion by which each genus may be distinguished. For of the shape and constitution of the animal itself we must remain for ever ignorant, as the only state in which the greatest number are obtained, is when they are empty and deserted by the animal, washed up by the force of tempests or currents of the sea. The triplex genus of Shells are remarkable for their triangulated form, which is occasioned by three thick divisions placed lengthwise on the outside of the Shell, and which form its chief ornament. Other Shells, which in many respects have a resemblance to it, are distinguished in a similar way: the Monoplex has one fold on its body; the Biplex two folds; the Hexaplex six folds, and so on with the following species, until we arrive at the greatest number, the Polyplex, in which the folds are very numerous, but the number not defined, and indeed of these latter but few have been discovered, and those only in the Southern Ocean and islands lately discovered by the investigations of Captain COOKE and other navigators.

Amongst the most agreeable and pleasing forms of Shells, which the extensive regions of the East Indies have

CONCHOLOGY.

offered to our view, we may class the *Triplex Foliatus*, so named from the leafy divisions and branches, forming its spines and covering its whole surface. Not indeed that there is much variety in the colours or marking of the Shell, as there are many which are more magnificently painted, but because of the elegant and taper character which it every where exhibits. The plan or structure of the Shell is three-fold, from hence its distinctive name is derived, and the folds or divisions being placed longitudinally, are spread out into branching extremities, most gracefully divided and inverted back upon the body. The mouth is embossed with a fringed edge; the rostrum or beak richly ornamented with spines of different sizes and directions, divided and pointed at the extremities. This Shell has received the common name of the Rosebush, though we cannot perceive any striking resemblance in such a comparison; the extremities of the spines are, however, often tinged with a slight shade of rose colour, which may be one cause of its receiving that name.

Several instances have occurred in specimens of this Shell, of the animal having added a fourth fold to the other three before mentioned, in which case the mouth of the Shell becomes almost closed up. This additional inclosure is very common in Shells of the *Triplex* kind, and is to be considered as a monstrous or unnatural accretion in the growth of the Shell, in the same manner as cows and other animals are sometimes found to have more horns than usual, and which are to be considered as deviations from the general laws of Nature.



G. Perry delt.

T. L. Brushy sculp^t

MANTIS FOLIATUS.

Pub^d by J. Stratford, June 1810.

ENTOMOLOGY.

Genus—MANTIS. Species—MANTIS FOLIACEUS ; or, WALKING LEAF.

Character—The antennæ filiform ; the head heartshaped ; six legs, the foremost with falciform hands, and a thumb of five joints ; the hemelytræ folded crosswise of the length of the wings beneath them.

THE family of the Mantis differ from the insects called the Phasmata, or Spectra, in having the antennæ placed on the forehead between the eyes ; whereas in the Phasmata, or Spectra, they stand on the sides of the head, far apart from each other. The legs of the Phasmata are all formed for running, like each other, and are placed so near to the head, that they are excavated near the base, to make room for the head between them. The Mantis has instead of fore legs, arms with scissar-formed hands ; the upper arms and elbows are dentated or fringed.

The Mantis may also be subdivided into two families ; the gouty ones, which have leaves on their legs, and the round-legged ones, which are without them. These also may be divided again into two parties ; those which have round eyes, and those which have angular ones. These distinctions have been ably elucidated by Dr. LICHTENSTEIN, in the Sixth Volume of the Linnæan Transactions, and which agrees in the main with the learned FABRICIUS.

There is a remarkable difference also in the mode of life of the Phasmata and Mantis ; the former live solely on

ENTOMOLOGY.

vegetable food, laying their eggs like Grasshoppers, in the earth; the females being furnished with a style for depositing them, of an ensiform figure, and covered by leaflets, which are found on the last division of the abdomen: the Mantis, on the contrary, confine themselves intirely to food taken from the animal kingdom; their falciform hands serving to catch and carry to their mouths the flies and other small insects which they devour; with regard to their metamorphosis, they never lay their eggs in the earth, but fix them on a twig, straw, or blade of grass, and these in rows or regular masses.

The insect at present figured, is from a specimen in Mr. BULLOCK's Museum, and has a striking resemblance to the form of a leaf in its wings and coverings, called the *Hemelytræ*. This curious circumstance, giving to the animal the appearance of a bunch of dead leaves, is undoubtedly intended for its preservation and providential escape from birds or enemies who would attack it; its colours and form serving as a complete disguise. The providence of Nature is indeed very obvious in the same way in many other instances of the animated creation; thus the insect kingdom are found generally to be of a similar colour and appearance to the objects upon which they feed, which serves as a preventive check upon their ultimate destruction, which otherwise might too fatally ensue. Thus partly by means of defence, and partly by means of disguise and escape by flight, or other natural means, these small and seemingly insignificant creatures elude the attacks of their incroaching and formidable adversaries. The colour of the wings of these insects is infinitely varied, sometimes green, red, or brown, but always bearing a strong resemblance to the general form of a leaf; and hence they have received their characteristic name.

Extract of a Tour, by Mr. Glas.

*Extract of an Account of a Tour made at the
Top of the Peake of Teneriffe, by Mr. Glas,
in the year 1761.*

“ The Island of Teneriffe, the highest and most conspicuous of that groupe which has been called the Canaries, is situated in the Atlantic Ocean; and the Peake, which is by much the highest point, and resembling in form a cone or sugar loaf, has been much noticed by those who have had occasion to pass near it and view its prodigious height.

“ In the month of September, 1761, about four in the afternoon, I set out in company with a friend from Port Oratava, to visit the top of the Peake. We had with us a servant, a muleteer, and a guide; after ascending gradually for about six miles, we arrived at sun set at the most distant house on this side, and which stands in a hollow; here we found an aqueduct, and our servants watered the cattle, and filled some barrels with water to serve on our expedition. The valley is very beautiful, abounding with odoriferous trees and plants, and near the houses are several fields of Indian corn; and on this side of the island, the natives have two crops of grain in the year. Mounting again we travelled upon a steep road, through trees and shrubs, till we arrived at that part which is constantly overhung with clouds, and close to a large wood (it being now midnight) we alighted, made a fire, and supped; and then went to sleep under the bushes.

“ The moon appearing bright, we mounted again, and travelled slowly through an excessively bad road, re-



Extract of a Tour, by Mr. Glas.

sembling ruins of stone buildings scattered on each side. After we got out of this part, we came upon small white light pumice-stone, like peas or shingles. Here we rode for an hour, and the wind being very cold, sharp, and piercing, our guide advised us to alight and rest till four or five in the morning.

“ We followed his advice and entered into a large cave, the mouth of which was built up to about a man’s height, to prevent the wind and cold from getting in. Here we found also some withered branches, with which we made a large fire to warm ourselves, and passed the time as well as we could, with one side almost scorched, and the other benumbed with cold. About five we mounted again, travelling very slowly, for the road here was very steep and rugged, till we came to a cottage built of loose stones; the name of this place, our guide told us, was Estancia de los Inglesses (or the English Resting Place), for none but foreigners and people who gather brimstone, and by that means earn their bread, progress that far on the road. Afterwards we were obliged to alight, the road being too steep for riding, until we came to the top of a Rising or Hill, where there appeared a vast number of great loose stone, of flat surfaces, ten or more feet every way. ◊

“ Here we were compelled to travel by leaping from rock to rock, for they were not all close to each other. Amongst these is a large cavern with a well or natural reservoir, and into this we descended by a ladder, which the poor people have placed there for that purpose; part of the bottom was covered with water, but was frozen towards the inner edges; we attempted to drink it, but could not, on account of its excessive coldness, however the guide filled a bottle which

Extract of a Tour, by Mr. Glas.

he had purposely brought from our last station. After travelling for half a mile over the great stones or rocks, we now were arrived at the foot of the real Peake or Sugar Loaf, which is very steep, and to add to the difficulty of ascending, the ground is loose and gives way under the feet, and consequently extremely fatiguing, for although the length of this eminence is not above half a mile, yet we were obliged to stop and take breath I believe thirty times; but at last we got to the top, where we lay about a quarter of an hour to rest ourselves, being quite spent with fatigue. The clouds were now spread out under us like an immense ocean; and above them, at a distance, we could perceive something black, which we took to be the Island of Madeira.

“ Had the air been quite clear, I have no doubt but we could have descried Mount Atlas, in Africa, although three hundred miles off; for though the Peak can only be distinguished at sea at the distance of one hundred and fifty miles, yet the spherical figure of the earth would not prevent our seeing Mount Atlas, because its summit with that of Teneriffe, would be so far exalted above the horizon. After we had rested for some time, we began to look about and examine the top of the Peake, its dimensions we found to be as Mr. EDEN describes, a hundred and forty yards in length, and one hundred and ten in breadth. It is hollow and shaped within like a bell subverted. From the edges or the upper part of this bell or cauldron, as the natives call it, to the bottom, is about forty yards. In many parts of this hollow we observed smoke and steams of sulphur issuing forth in puffs.

“ The heat of the ground, in some particular places, was so great as to penetrate through the soles of our

shoes to our feet: seeing some spots of earth or soft clay, we tried the heat with our fingers, but could not thrust them in farther than an inch or two, for the deeper we went, the more intense the heat. We then took our guide's staff and thrust it to the depth of four or five inches into a porous place where the smoke seemed to be thickest, and held it there a minute, but drawing it out we found it burnt to charcoal.

“ We gathered here many pieces of most curious and beautiful brimstone of all colours, particularly azure blue, green, violet, yellow, and scarlet. The clouds had a most uncommon appearance below us, at a great distance, they seemed like the ocean, only the surface of them was not so smooth or blue, but had the appearance of very white wool. When we descended afterwards from the Peake, and entered the region of the clouds, they appeared to us as a thick mist or fog in England: all the trees of the fore-mentioned woods, and our own cloaths were compleatly wet with it.

“ The air on the top of the Peake was thin, cold, piercing, and of a dry parching nature, like the south-easterly winds which I haye felt in the great Desert of Africa, or the Levanters of the Mediterranean, or even not unlike those dry easterly winds, frequent in Europe, in March or April.

“ In ascending the highest part of the mountain, called the Sugar Loaf, which is very steep, our hearts panted and beat vehemently; whether this was owing to the thinness of the air, or the uncommon fatigue of climbing, I cannot determine; perhaps it might be the two combined. Our guide, a slim agile old man, was not affected in the same

Extract of a Tour, by Mr. Glas.

manner like us, but climbed with ease like a goat ; he being one of those poor men who earn their living by gathering brimstone in the cauldron, and other volcanos ; the Peake itself being no other, although it has not burned for some years past, and all the highest parts of the island shew evident marks of those great revolutions, which have occurred in former ages.

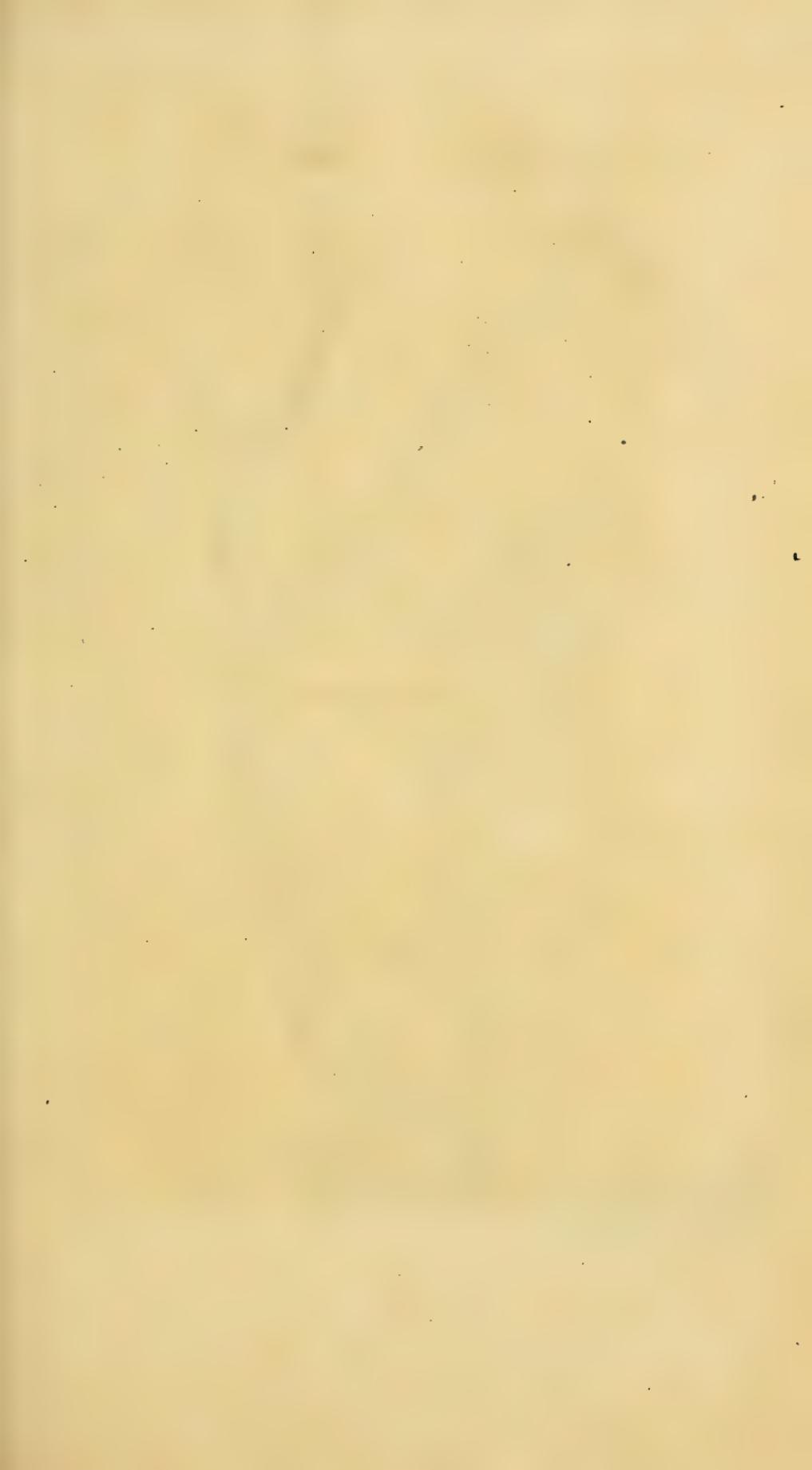
“ The Sugar Loaf itself is nothing else than earth mixed with ashes and calcareous stones, thrown out of the bowels of the earth ; and the great square stones above described, seem to have been thrown out of the cauldron or hollow of the Peake, when it was a volcano. The top is quite inaccessible on every side, except that on which we went up, which was the east. We tumbled down some large rocks towards the west, which rolled a vast way, till we lost sight of them.

“ After taking some repose we began to descend, and with so much more quickness from the great descent, so that in a little more than half an hour we cleared the Peake. About five o'clock we arrived at Oratava : the whole distance from the base of the Peake we compute to be fifteen English miles ; and the hight of Estancia, above the level of the sea, I estimate at four miles ; if to this we add one mile more for the Peake, the whole height may be computed at five English miles perpendicular.

“ The situation of Estancia is well adapted for the purposes of an observatory, if a warm commodious house was built upon it, to accommodate astronomers, while the moderate weather continues, viz. in July, August, and September.

Extract of a Tour, by Mr. Glas.

“ But he who visits the summit of this tremendous mountain, will find it necessary to wait for fine clear weather, to carry a good tent, and a plentiful supply both of water and provisions, so that he may remain at Estancia for four or five days, and visit the top of the Peake twice or thrice in the time, making his observations at his own leisure.”





o Pory del.

CHAMELEO.

T. R. Peacock, Sc.

Not by Illustration given.

ZOOLOGY.

Genus—CHAMÆLEO. Species—CHAMÆLEO PALLIDA.

Generic Character—Body elongated, four footed, ending in a tail, head flattened, angulated, feet divided into two sections, the outer section having three toes, the inner one two, armed with short nails and prehensile.

AMONGST the various and singular shapes of Nature, which have attracted the curiosity or the wonder of travellers, none are more worthy of attention, or more apt to excite a strong interest in our minds, than the creature which we are about to describe. Its melancholy and wasted appearance indicated by its features, and the lean character of its limbs and body, would lead us naturally to consider it as one of the most miserable of created beings, which however is far from being the case, Nature having provided, as in all other instances, for its wants and gratifications. This remarkable family of animals described under the Name of Chamæleon, has been placed by Linnaeus and other Naturalists with the Lizard tribe, although certainly nothing can be essentially more different in its form, particularly in the feet and head. The feet of the Chamæleon have a considerable resemblance to those of a Parrott, and are formed to clasp the boughs of the trees, in which it chiefly resides, whereas the Lizard's foot approaches in a very great degree to the human hand, and the eyes are not capable of being elongated from the head, like those of the Chamæleon. Four or five different species have already been discovered in Africa, amongst which are the *cinerea*, *nigra*, *pumila*, *rostrata*, and the present one, the *pallida* from Egypt.

ZOOLOGY.

The general size of the Chamæleon (including the tail) is from eight inches to fifteen, in the different Species, which have been examined, and there is little doubt but that a great many more remain unknown and undiscovered in their native forests.

It is a creature quite harmless to man, and supports itself by feeding upon small insects, for which the tongue is excellently adapted, being of a contractile nature so as to be shot forth to a considerable length or drawn back into the mouth at pleasure; it is also divided at the end. By the power which it possesses, in common with the Amphibia, of inflating its chest with Air, it sometimes appears much more plump and fleshy than at other times, on this account when in its lean state its ribs may often be compleatly seen and counted as well as the Vertebræ of the back and neck: the skin is granulated, and composed of small tubercles the size of a pin's head, of an irregular Shape. The motions of the Chamæleon are extremely slow, and when sitting on a branch, or passing from one to another, it fastens itself by curling its tail round that from which it means to move, till it has secured the other by its feet. The change of Colour which always takes place upon bringing it out of a shady place into the sunshine is very remarkable, from a bluish ash colour, it becomes rather of a yellow tinge, and spotted with an appearance of Red: on reversing its body, it becomes sometimes party-coloured, one side being grey and the other brown; so that it is impossible to ascertain what exact colour is really most natural to this truly surprising animal; or to say with the Poet;

“ no Numbers can the varying robe express,
As each new day presents a different dress.”

ZOOLOGY.

Upon the return of the English expedition from the Mediterranean, the wife of an English Soldier having brought a live Chamæleon from Alexandria, supported it for several months, by keeping it in a box lined with cotton: it shewed considerable affection for its keeper, and lived chiefly upon bread soaked in milk and mixed with sugar. It was found to undergo all the relative changes of colour, which travellers have mentioned, and which have been so often disbelieved or doubted.

It is no less a remarkable circumstance that the eye of the Chamæleon is capable of being extended from the head like that of the Snail, by which a greater extension of Vision is imparted to the creature when in pursuit of its prey, as it can in all such cases give to its eyes a different inclination, the pupil being placed at the end of a muscular pivot, and moving circularly round in all directions. Its general form and appearance have not been unsuitably characterized by a modern Poet in an excellent Fable upon Credulity and Prejudice.

A Lizard's body, lean and long,
A Fish's head, a Serpent's tongue;
Its claw with triple toes disjoin'd,
And what a length of tail behind!

From the small quantity of food which the Chamæleon is found to consume it has been idly conjectured by some persons, to live entirely upon air, forming therein an exception to all the other animated tribes of nature. Upon a minute dissection however of the stomach it has been discovered that flies and the larvæ of small insects, are its general and natural food, and that it is formed with peculiar powers from nature, for undergoing a very long continuance of abstinence.

Philosophers have been much puzzled to account for the different changes which take place in the shades of colour, but it is most probably attributed anatomically to the secretion, or the withdrawing, of some particular fluid which exists underneath the pores of the skin, and which the animal can regulate according to its own pleasure. Such also in the human species is the nervous sensation of blushing, occasioned by the extreme afflux of blood to the extremities, or the pallid hue which results from the sudden withdrawing of the circulating fluids from extreme terror. It is not to be supposed that the Black Chamæleon can change its hue in so strong a manner as the other species, and it is accordingly found to alter only to a brown or dark purple. The Green or Olive-Coloured Chamæleon (the Chamæleon *Cinerea* of various authors) seems to have the greatest powers of change, and the pale species herewith described the least of all.

Of the object which the great Author of Nature had in view in such a provision of changeable appearances, it is perhaps very difficult to judge, but it is most generally and reasonably supposed to be designed for the purposes of assisting the concealment of the Animal from its external enemies, being itself a passive creature, unprovided with any weapons of offence or defence, and far more capable, by its situation, of escape than of resistance.

G. Berry del.



T. L. Buckley del.



STEROMATEUS.

Drawn by G. Berry. Engraved by T. L. Buckley.

ICHTHYOLOGY.

Genus--STROMATEUS. Species--STROMATEUS DEPRESSUS.

Generic Character—Body oval shaped, flat and compressed, the eyes placed one on each side, one dorsal and one abdominal fin each of them commencing at the swell of the body, one lateral fin on each side near the gills, the tail divided acutely radiated.

TO the labours of the great LINNÆUS and ARTEDI, we are indebted for the most perfect investigation of the genera of Fishes, who have proposed the fins as an admirable characteristic by which to distinguish their form and mutual analogies. We shall therefore consider the other parts of each description as subordinate to the above, and regard the number and arrangement of the fins as a perfect and natural rule for finding the genus of every kind of Fish hitherto discovered in Nature. Of the genus Stromateus which we are about to describe, only four species are mentioned by BLOCH, viz. the Fiatola, Cinereus, Argenteus, and Niger; the present one being entirely new and accurately drawn from a fine specimen in the collection of Mr. WILLSHER, of Chelsea, we have denominated the *Depressus* from the circumstance of the singular depression of the nose, and which is not observable in the others. This Fish when fully grown, is supposed to be five inches long, and the physiognomy of its features and character are whimsical and entertaining. The lower jaw projects a little farther than the upper, the top of the head has a plate and several spines, and which are slightly united to the back fin, the eye is large and flat and placed on each side, the tail is divided into a two-fold fan, the junction being very narrow and short between it and the body.

ICHTHYOLOGY.

Such are the leading features of the *Stromateus Depressus*, to which we may add, that in Nature (although in its dry state this is but imperfectly shewn) the colours are delightfully vivid and pleasing. The center of the body is of a pearly colour and resembles the Opal in its prismatic variations of tints; the back, face, and tail of yellow or amber colour, and in the place of teeth there is a rough boney process on the upper and lower jaw of the Fish.

At first sight it appears to resemble a good deal, the *John Dory*, a Fish caught frequently in the British Seas, and which has been often celebrated as an eminent topic of conversation with epicures; but the generic character is very different and as before said peculiarly its own. If a certain method of drying and preserving the Fish of the Southern regions of the Globe, could be adopted by Naturalists and Travellers visiting those almost unknown regions, there is no doubt that such a collection might soon be formed as would tend very much to make the various productions of the great deep seem not the least, but most numerous of the animated families of the Globe, and perhaps the one least likely ever to be completely numbered. It has been indeed attempted to number the Animals and Birds, but in the numberless myriads of Fish that are spread thro' the Atlantic, Southern, and Pacific Seas, a slight comparison and view seems to be all that Mankind can ever attain to: Nature is boundless and infinite, while the knowledge of Man takes in but a small span of the wide and extensive scale of beings existing through the different stages of Animal life.



Published by J. Stratford July 1820

ZOOLOGY.

Genus—DIPUS, OR JERBOA. Species—DIPUS MUSCOLA.

Genric Character.—Incisores or cutting teeth of an irregular number, the lower ones placed horizontally, a wide open space standing between the incisores and the grinders, the hind legs very long, generally three times as long as the fore legs, ears rounded and projecting, body containing an outward pouch for the young, placed like an apron across the body.

THE Dipus or Jerboa forms a very remarkable family of Quadrupeds, and exists in most parts of the World; in Asia, Africa, and America, one of its strongest distinctions is the singular length of its hinder legs, to which we may add its pouch or apron for carrying its young, of which it has generally two or three at a birth.

Since the discovery of the extensive Continent of New Holland, by Capt. COOKE, and other circumnavigators, various species of the Jerboa have been discovered in great variety in that curious region of the Globe. Of these the largest is the brown Kangaroo, the grey and buff kinds being both much smaller and of different characters. Next to these is the curious Animal called the Kangaroo Rat, so well described in Governor PHILLIPS's Journal of a Voyage to New Holland. Last of all appears the present little Animal, which is considerably larger than an English Mouse, with all the striking characters of the Jerboa or Kangaroo, and which has been not improperly called by the Sailors, the Kangaroo Mouse. The number and size of its teeth is not exactly known or hitherto examined; and it is supposed to be a very rare Animal even in its own

ZOOLOGY.

Country, as only one specimen is known to be in England, and which is in Mr. BULLOCK's Museum. The number of the teeth however is not of so much consequence in this case, because it varies in almost all the species of the genus **Dipus**, the general arrangement or situation however is always the same, and agrees with the character of the genus which we have given at the head of this Chapter. The **Dipus Muscola** is of a placid agreeable appearance and is probably capable of being tamed, like its relation the Kangaroo, as it is used to a climate similar in a great measure to that of England, it is not wholly improbable but that it may one day become a domesticated Animal. These Creatures have also the power of sitting up or resting on their hinder feet like the Squirrel and the Hare; the flesh of which they resemble a good deal in flavour, and it is said to be by no means an unpleasant kind of food.

The different species of this genus, already discovered in New Holland, amounts already to five or six, and probably other kinds may be found when the Country is more penetrated, for being of itself larger than Europe, it is natural to suppose that a great variety of Animals must inhabit so extensive a region. We ought perhaps not to omit the remark that the two inner claws of the hinder feet of this singular Animal have a ridge or narrow hollow process running down the middle of them, which makes them look as if they were double, and in which circumstance they resemble exactly the Kangaroo and other Animals brought from Botany Bay. The general height of the Animal is about eight inches, that of the Kangaroo Rat, twenty-two; the hair of the **Dipus Muscola** is by far the most silky and smooth in its texture, and is of a light brown colour mixed with grey.



SCALARIA.



W. Baily del.

T. Bushy sc.

Print'd by J. Stratford, July 1810.

CONCHOLOGY.

Genus—SCALARIA. Species—SCALARIA DIS-JUNCTA.

Generic Character.—Shell spiral, univalve, the different stages of the spire rounded and separated from each other, leaving a cavity within, the spire surrounded on all sides with ribs intersectionally, placed like the steps of a ladder; the mouth round, with a flattened border. The general colour of the shell pale grey, spotted irregularly with white spots, the form altogether pointed and pyramidal.

THE extraordinary Shell which is at present a distinguished ornament of MR. BULLOCK's Museum, is remarkable for the fine structure and shape of its folds and the curious arrangements of the parts nearest to the mouth, which seem as if quite divided from each other. The Shell is pointed, spiral, and of the form of a pyramid, environed or surrounded with transverse bands of a beautiful transparent texture; indeed the whole Shell is so thin and delicate in its formation that it is almost a miracle to find one quite perfect and unbroken in all its parts.

It is commonly named the Wentletrap, but from what derivation that word was taken, is not exactly known; the learned Author of the Enlargement of Linnæus's *Systema Conchyliorum*, Monsieur LAMARK, has given it the generic name of *Scalaria*, from its resemblance to a rope-ladder, and we have out of respect to his great talents and learning, adopted his name. Linnæus had formerly placed it with the common *Turbo*, and indeed at first sight it might pass for that kind of Shell, until its characteristic distinctions of the ribs or divisions, are more particularly pointed out.

CONCHOLOGY.

The *Scalaria* is generally two inches and three-quarters in length, and about one and a half in width, of a white and pale appearance inclining to grey, and it may be aptly compared to a spiral worm or screw, the folds of which do not at all touch each other, and that circumstance adds to its singularity and to the admiration it has excited among connoisseurs, so that the enormous price of fifty or a hundred pounds has frequently been offered for a fine specimen. If we were to speak of its beauty, we should say that it arises chiefly from its intricacy and transparency, in the same manner as is the case with a diamond or a beautiful piece of lace, which is admired more for rarity than beauty. As for its colours it has little to boast of in that respect, being, strictly speaking, of a tint which all artists have agreed to call neutral, and which it is impossible to describe, except by saying that it inclines to a grey. It is a native of Ceylon and Amboyna, and resides in the deepest seas of those distant regions.

Upon the whole we must consider the *Scalaria* as a wonderful piece of workmanship, and highly to be admired for its singularity and rarity ; but in respect to the more attractive harmony of beautiful colouring, the rich tints of the *Rainbow* or *Prism*, the praise must be conferred upon other Shells, as the delight with which it fills the mind arises only from its singular shape.

The four small Shells which accompany the *Wentletrap* are drawn from specimens lately imported from New South Wales, No. 1 and 2 are of the *Conus* genus and resemble the larger kind in their form; No. 3 is evidently of the *Trochus* kind; No. 4 *Pyrula*, resembling a little Pear. They are given to shew the variety of their patterns and form, and are hitherto unnamed by any Conchologist.

Extract from Mr. PATTERSON'S Travels in Africa, in the Year 1778.

“ In the month of August we reached the Hart Beast River, situated in the Interior of Africa, in the Country of the Hottentots, and several hundred miles north of the Cape of Good Hope. The Country which we had passed through in coming from the Cape was very mountainous, and most of the Hills form Pyramids of large, loose, red, sandy stone. Here we found but few Plants in flower, except of the succulent kind. We were now arrived near the Camis Berg, a very high mountain, where we found a good supply of water; in the morning we directed our course to the West, and in our road passed several dangerous precipices. In the afternoon we came to a House belonging to a Dutchman, near a River called the Green River; here we stopped all night.

“ The Hottentots were very civil and friendly, and brought us some milk, for which we exchanged with them tobacco and hemp leaves, which they prefer to the former. Their manner of living is plain and simple, nor did they seem to possess that savage and uncouth character which has been so generally attributed to them by travellers. They amused us for a part of the night by a spectacle of dancing, and in return we treated them with tobacco and dacka. Their music consists chiefly of flutes, which they form from the bark of trees of different sizes. In the afternoon we directed our course northwards, through a heavy sandy plain, which our cattle had much difficulty in crossing, and at night we came to the Great River, and our Horses being much fatigued, we waited till our waggon arrived. Here we found many Hippopotami or River Horses of immense size and bulk, and wounded one, which afterwards escaped by plunging into the tream.

“ I made an excursion along the side of the Mountain, and found several new plants, the Mimosa, Salix, and several shrubby ones; amongst these may be reckoned the Euphorbia, the juice of which is supposed to be the strongest vegetable poison known in Africa: it resembles the creeping Cereus in its stalk, being prickly all over, having a small blossom adhering at the top of the stalks, which grow upright for fifteen feet. The Hottentots are supplied by this plant with poison for their arrows, by mixing it with the expressed juices of a Caterpillar, taken from another plant of the Rhus kind; sometimes for the purpose of destroying the wild Beasts, they throw the plant into certain fountains of water, frequented by them, which after drinking of the water, thus poisoned, they seldom get a thousand yards before they fall down and expire. This practice of poisoning the water, proves an additional danger to Travellers who are unacquainted with the circumstance; though the Natives generally use the precaution of leading the water which is to be poisoned into a small channel or drain, and covering up the principal fountain with boughs of the largest trees.

We next directed our Course easterly along the Banks of a river, where I added much to my collection of plants, which blossomed all around in the greatest profusion. We also beheld the most beautiful birds of gorgeous and opposite colours and numbers of Apes and Elephants.

On the fifteenth, whilst we were in this situation, Mr. Van Renan, one of my companions, had a very narrow escape of his life, in crossing at the Fording Place, he was attacked and pursued in the water by two Hippopotami or river horses, he had four Hottentots with him, and they had the good fortune to get upon

a rock in the middle of the river, and their guns being loaded they killed one of those Animals; the other swam to the opposite shore. Mr. Van Renan, anxious to go to the north, in order to meet with the Camelopard, which he had heard abounded there, while I made excursions to the eastward in search of curious Plants.

I here found the Boshmen's Grass, the seed of which is used by the Boshmen as an excellent substitute for corn. Locusts at certain times of the year come also down in great quantities, so as to destroy most of the Plants, but in their journey they are themselves eaten by the Hottentots and are esteemed an excellent and delicious food.

The next day we killed an Animal of the Antelope tribe called the Hartbeast, the *Capra Dorcas* of Linnæus; the length of the body, including the tail and head, was five feet, six inches; it is of a brownish colour, and the flesh is palatable though dry. We then proceeded to the Sondag River, the face of the country at this place has a very barren appearance, and wild Dogs are found here which are larger than the Jackal and are very troublesome to flocks of sheep. The Hippopotami that are found here are very shy, and the chief Animals found are the Lion, Panther, Elephant, Rhinoceros, Buffalo, Antelope, &c. The Natives here are darker in their complexions but of better shape, than any I have before seen.

From the pith of a certain kind of Palm Tree the inhabitants make an excellent bread. In the neighbourhood of this place, we saw a herd of Elephants, as we conjectured eighty in number at the least, they seemed very quiet although curious, and came so near us, that

we could distinguish the length and thickness of their teeth. The country is here well watered, and produces excellent pasture for Cattle. In the evening we saw a smoke upon the side of a green hill, which our guide informed us was a Caffree Village, three of the natives seemed rather alarmed at our arrival and retired to inform the whole of the villagers; they then received us kindly, brought us a present of milk, and offered us a fat Bullock, agreeably to their usual hospitable custom.

“ The Village consists of fifty thatched houses and stands near a very pleasant river called Mugu Ranie and it belongs to their chief. It contains about four hundred inhabitants who are in state of vassalage to the chief, they subsist entirely on the milk of Cows and Game, not not being allowed to kill any Cattle. The men take care of the Cattle and milk them, the women cultivate all the gardens and manage the gathering of the corn.

“ The Chief made us a present of a Bullock, which we afterwards shot, and the Natives were very much surprised having never seen a gun before, he wished me to have taken a hundred Bullocks in return for some Beads and Tobacco which I presented to him, he seemed half offended that I would not take them, and said, “ Well, what do you think now of our Country ? ” Their baskets are beautifully woven from grass by the Women, and are so close that they will hold water completely. Of these I begged for two, also two of their lances, which they freely gave me, and begged of us to stop with them for a few days, but as the weather was very hot, we chose rather to sleep in the woods, than in their Huts, and only remained there one night. They make a kind of punch, which is very pleasant, from the Guinea Corn; they make use also of Plantain, called by

Dr. Thunberg, Helaconia Caffraria. The Men are all six feet high, strong and of great courage in attacking Lions or any Beasts of prey, their skin is jet black and their clothing is made from the hides of Oxen, and they are very fond of tame Dogs, which they always keep by them.

“ In the Plain we observed a very large Tree of the Mimosa kind, and soon after we came up with six Camelopards, my friend Mr. Van Renan shot one of them, which proved to be a male, I preserved the Skin and the Skeleton,* the size I found to be as follows.—The height of his natural position from the hoof to the top of his horns, fourteen feet nine inches; the length of the body, about six feet. These Animals eat the fruit of the tallest Trees, such as the Mimosa and Wild Apricot.

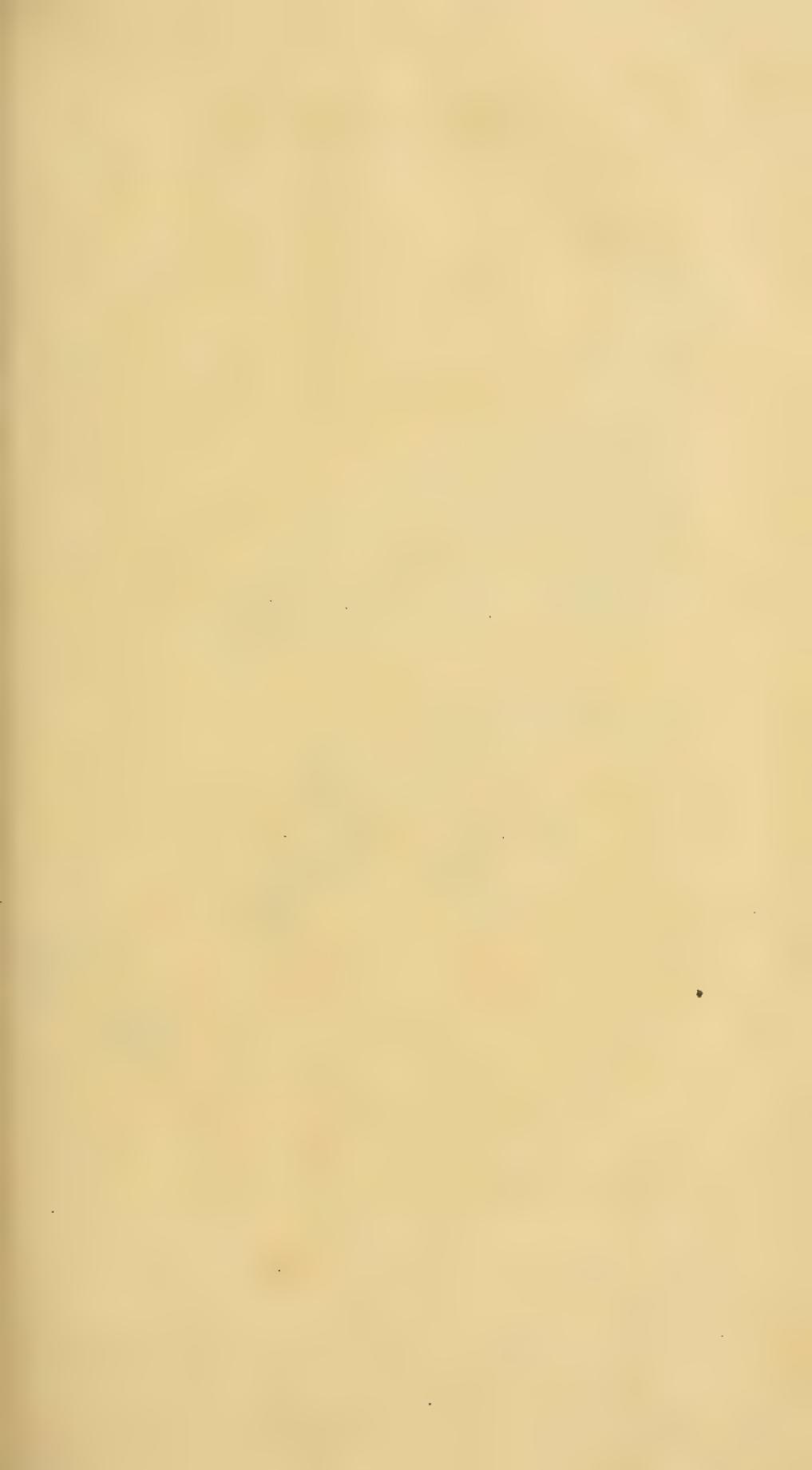
“ Their colour is in general red or a dark brown and white, some black and white, they have no fetlock to the hoof, they are not very swift, but can continue a long chase before they stop. At a distance they look like a decayed Tree, and are spotted in general with grey spots placed irregularly, chiefly on the back.

“ From this place we returned to Bokke Veld, and arrived there in four days. We had heavy showers of rain accompanied with thunder and lightning, I found an ever-green Plant, upon which grows a fruit which the Peasants use as an ingredient for poisoning the Hyena. The process is very simple and consists in drying the fruit and grinding it to powder, which they rub over a piece of flesh and throw it in places which are infested with these fierce Animals. Upon eating the flesh, the Hyenas are so imme-

* These are now preserved in the Museum of Mr. JOHN HUNTER.

diately poisoned, as generally to be found at a very little distance from the place where it was laid: this fruit is conveyed through the whole Country, for this purpose.

“ The next week we departed with a Team of fresh Oxen to the Berg Valley, and passed the Mountain called Hocksberg, the summit of which is generally covered with snow, in this part is the Parel and Draken Styne, a well watered and fruitful Country, extending far to the Southward, and almost the only article of these parts, used in Commerce is the Wine, which is nearly equal to that of the Cape.





KING BIRD, OF PARADICE.

Pub. by J. Stratford, Aug. 1810.

ORNITHOLOGY.

Genus—PARADISEA. Species—PARADISEA REGIA.

Generic Character—The bill covered at the base by irregular plumes; the side feathers irregular and far extended; head and legs resembling those of a Crow, and the feet formed for walking.

THE genus *Paradisea* seems to present a happy and striking resemblance of the gorgeous and splendid magnificence of Eastern pomp; the crowned summit and the varied and spreading plumage of the wings and tail, frequently expanded out to an immense length and space, indicate to our minds, an idea of grandeur which has no other parallel in Nature. In praise however to its symmetry and suitable proportions of form, our admiration must be more limited, as the head is generally so small as to be out of all natural proportion, and the legs are coarsely plaited with scales of an unpleasing texture.

The Bird of Paradise, as far as observation has removed the veil from Nature, is found only in the regions of Papua which reach to a few degrees on each side of the Equator.

It is not to be wondered at therefore, considering its rarity, that amongst the various and delightful assemblage of Birds which the Torrid Zone has yielded to the enquiring Naturalist, none have excited a warmer admiration amongst collectors, than the Bird of Paradise. It has been imagined by some authors of repute, to have been the Phœnix of the most ancient writers; but it is more probable, perhaps,

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that the Greeks and Romans were wholly unacquainted with this very interesting tribe of birds.

Dr. FOSTER has presented the learned world with a classical Dissertation on the fabulous Phœnix of Antiquity, a bird of the size of an Eagle, decorated with gold and purple plumage, and more particularly described by PLINY, as having the splendor of gold round the neck; and the rest of the body and tail consisting wholly of a prismatic mixture of different colours.

The names of these Indian birds, both in their own and the European languages, appear to attribute something of a celestial origin to them. The Portuguese navigators call them the *Passeros du Sol*, or birds of the Sun; in the same manner as the Egyptians had regarded the Phœnix as a symbol of the annual revolution of the Sun. The Inhabitants of the Island of Ternate call them *Manu co dewata*, or Birds of God; from this Indian name, the Count de BUFFON has derived the modern name, *Manucode*.

The Royal, or King Bird of Paradise, is of a bright orange colour on the neck and shoulders, and is perhaps more destitute of extended feathers than any other of the species. It is also the smallest of the Paradise Birds, and usually measuring about five inches and a half in length, without reckoning the two middle feathers of the tail, which are most generally six inches long. The colour of the upper part of the back is in general scarlet; the bill of a pale yellow, and about an inch in length; its base, as well as the fore part of the head, surrounded with silken plumes; the throat and part of the breast are of a deep red, and there is a flap affixed to the side of the body, consisting of feathers elegantly fringed with white and green ends.

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The quill-feathers are of a bright orange brown underneath; the tail darker and more inclining to brown. From the upper part of the rump over the middle of the tail, extend two very long naked shafts, divaricating as they extend, each terminating in a beautiful circular web; the legs are strongly formed and of a pale brown colour. This species is called the King Bird, by the Dutch; it is said not to associate much with the others, but to be of a solitary nature, feeding upon berries, particularly of the red kind, seldom or ever settling upon lofty trees, but frequenting shrubs and bushes. It is considered as a very rare bird, and is said to breed in Papua, and to emigrate thence into the small Island of Arua, or Aroo, during the dry Monsoons.

In contemplating the splendid varieties of the Birds of Paradise, their costly and magnificent decorations, which at the same time are attended by no evident utility that we can perceive to themselves, as natural creatures, or even man himself, we are led to conclude that the uses of many of them will perhaps remain for ever concealed. But considered as objects adorned externally with a small portion of their Creator's glory, and with inexpressible beauty, they may serve to shew forth to the imitative powers of man, a pleasing and powerful instance of the forcible effect of opposite colours and combinations. By such means and studies, the ornamental arts of painting and design will become gradually enlarged and improved; the painter, the sculptor, or the embroiderer, may hence adopt a variety of inventions till now unknown, and add delight to the innocent pleasures and rational existence of man.

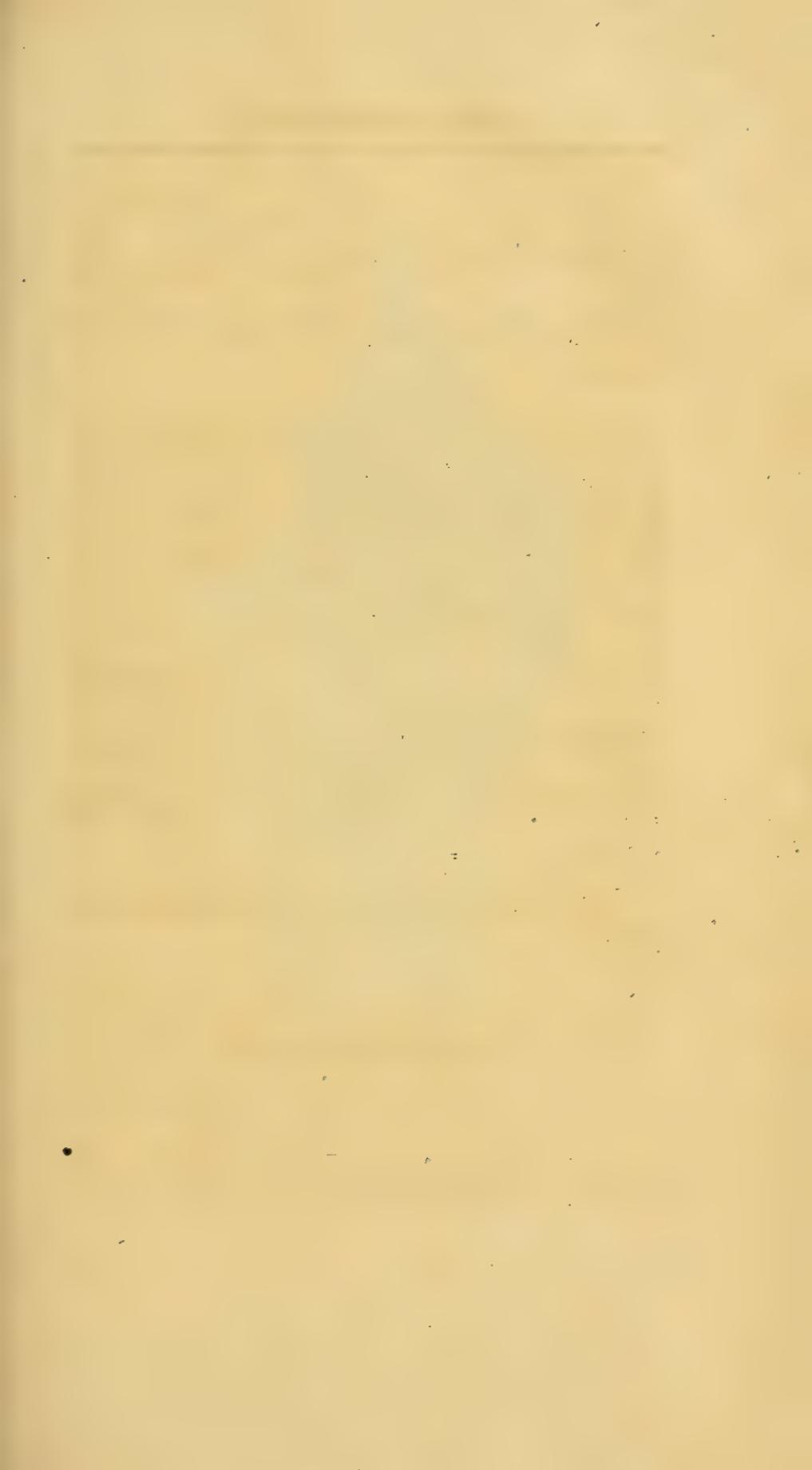
The number of the species of these tribes of birds at present known in the East Indies, is about seventy or eighty; and the European bird which seems to have the nearest

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affinity to them is the Hoopoe, sometimes found in England, having an elegant crest upon the summit of its head, which it can elevate or depress at pleasure. Like many of the Birds of Paradise, also, it is migratory, and retires for certain periods, to some warmer and southern climate, more congenial to its nature and the habits of its constitution.

The side-feathers which invest the body and neck of the Bird of Paradise, are admirably adapted to preserve the natural ballance and weight of the tail, which in most of the species is excessively long; without this circumstance, their flight upwards would have been more difficult, if not quite impossible. The chief advantage of their elasticity and taper form is to give a buoyancy to the flight, and enable them to change their course more rapidly and effectually. Travellers who have seen them in their native regions, report that they have the power of shooting up suddenly to an astonishing height in the air, so as to leave all the lower tenants of the grove at a respectful distance, while the brightest beams of the sun reflected on their amber plumage, seem like a sudden flash of lightning or a transient gleam of light.

From a singularly fine specimen in Mr. BULLOCK's museum.





G. Perry del.

T. L. Bushn. sc.

VOLUTA PACIFICA.

Pub'd by J. Stratford, Augt' 1840.

C O N C H O L O G Y.

Genus-VOLUTA. *Species-VOLUTA PACIFICA.*

Generic Character.—Shell univalve, spiral, columella, having four flutes, the apex mammillary.

AMONGST the univalve shells, which have recently been discovered in the Southern Ocean, the Voluta, which we are at present about to describe, stands eminently conspicuous. The genus Voluta is distinguished by the following striking characters; the shell is spiral and turrited; the mouth open and spread out, ending in a wide channel at the base; the columella or central pillar is invested with four flutes or bands; and the top or apex of the shell is mammillary, rounded. These characters of form will be always sufficient to distinguish it from the Murex, Conus, Volutella, and Ovula, which in other respects it a good deal resembles. The Voluta Pacifica is about four inches in length, of a beautiful gold colour, and richly variegated on the sides and top by elegant waved lines irregularly placed and of a dark brown colour; the mouth is of an amber colour, and there is also a remarkable horn or knobb, placed upon the cheek, which strongly projects, and is continued afterwards upon the folds of the spire. This shell is very rare, and has frequently been sold for eight or ten guineas, when in fine order and colour. It was discovered in one of the small islands near New Zealand, by that accurate investigator of Nature, Dr. SOLANDER, when employed upon a voyage of discovery with that illustrious circumnavigator, Capt. COOKE.

This shell is to be carefully distinguished from the genus Volutella, by its having no umbilicus, and its body

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being smooth and without tubercles or spires It has also a distant resemblance to the *Cymbium* genus, by the rounded and mamillary form of the Apex, or summit, but the spire, in this case, is not involved or covered over by the involution of the cheek. An immense variety of this genus of shells have lately been discovered in the regions of New Holland, and the adjacent coasts, agreeing in the general forms, as the *Voluta Nivalis*, *Voluta Magnifica*, *Voluta Aurantia*, &c. with several minuter species hitherto undescribed. These investigations have fortunately tended, by exciting the surprize of naturalists, to lead to a more exact and accurate arrangement of the conchological system of the moderns. The great *LINNÆUS* had not either the time or opportunities to illustrate sufficiently the necessary distinctions and analogies incidental to this numerous class of animals; the scientific world may therefore consider themselves as much indebted to the reform which has been effected in this part of the science, by the modern French writers, particularly Monsieur *BRUGUIÈRE* and *LAMARCK*, whose system is far more perfect and complete, although by no means opposite to that of the great *LINNÆUS*. Indeed it was high time that the darkness which enveloped this branch of natural knowledge, should be removed, and the whole subject presented in a more clear and consistent form.



TL. Blawdy Jr.

G. Gray del.

PAPILIO DIMOSTHENES,

Pub'd by J. Stratford, Aug. 1860.

ENTOMOLOGY.

Genus---PAPILIO. Species---PAPILIO DEMOSTHENES.

THERE is no division of natural history which has so much engaged the curiosity and attention even of the most indifferent observers of Nature, as the Papiliones, or Butterflies. The lively contrast of their external plumage and the splendid tints with which Nature has in every country adorned them, has constantly fixed the palm of beauty, as existing in a short lived and apparently insignificant tribe of insects. Such pursuits, however, cannot be wholly deemed unfit for the examination of the human mind, since their curious and surprising history, arising from the three great stages of their transformation, is calculated to interest and instruct the thoughts in the comparative analogies of Nature. From the first consideration of the Silk-Worm and attention to its natural instincts, arose the manufacture of silk, for different articles of clothing, giving an immense employment to a very large part of the community in every country of the globe, and which is capable of being mixed with a thousand other substances to an extent which can hardly be conceived.

The Papilio Demosthenes, herewith described, has a considerable resemblance to the Papilio Teucer of LINNÆUS, but differs from that insect as well as from the Eurilochus of CRAMER, and being found only in the Brazils, must perhaps be considered as a distinct species. The chief difference is in the form and colour of the wings. The spots which are inserted upon the under side of the wings, are extremely rich, being black and fenced with a half-moon mark of pure white; the outer wings are of a rich purple verging to

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a blue, edged with black, and having at each end or corner of the wing, a large spot of an amber colour, with small streaks of white circularly placed. The appearance of the under wing is divided gradually, the tints being of a pleasing grey softening into a dark brown, and afterwards into a black.

The specimen from which the present drawing was taken was lately imported from the Brazils, by Mr. HULLETT, in whose collection it now remains, and may be considered as one of the grandest Papilio's already discovered, as there is a splendor and simplicity in the forms and colours, which cannot fail to arrest the attention of the connoisseur. We may also add that the back of the wings and body are partly covered with a silky flowing hair, that is difficult to represent, but which chiefly invests the central part of the wings.

We have before observed that other species exist, which much resemble the present, but as they are brought from the East Indies, it is impossible that they can be the same as that herewith described, independently of the difference of form and colour.



Drawn on I. Pomer. by
a young man
W. Shillcock.

100 S.S. (N. M.) A.S.E.

ZOOLOGY

Genus—OPOSSUM. Species—OPOSSUM FLYING MOUSE.

Character.—Not exactly known.

IN the discoveries lately prosecuted in New Holland and the southern Islands of the globe, the Opossum Flying Mouse may justly be classed as the most extraordinary and eccentric; it resembles in so many of its qualities such a number of different animals, that it is almost impossible to determine to which it is most nearly allied. In the form of its teeth, it is similar to the Jerboa; in the flaps or membranes, uniting the foremost and hinder legs, it resembles the Flying Squirrel and Flying Dragon; in the pouch, which is placed like an apron for receiving its young, it resembles the Common and the Flying Opossum, and in the tail it differs from all other animals at present known, in having a flattened fin on each side.

The Opossum Flying Mouse has a lively sharp appearance, and is one of those animals which live in the trees and forests of Botany Bay and its neighbourhood, descending when it chooses from bough to bough, and sometimes to the ground itself, by means of the two broad leathery flaps that reach along each side of its body, which are covered with hair on the upper side.

The teeth are sharp and projecting, and calculated for piercing and breaking all kinds of nuts and fruits; his hair is of a pleasing dusky brown, shining, and in some parts curling agreeably over his back.

Z O O L O G Y.

Although he cannot be called the least of the quadruped-tribe which inhabit the variously-peopled earth, yet he undoubtedly may be classed amongst the smallest and most favoured, perhaps, of Nature's work, for he lives in a country where Cats "with deadly instinct never prowl."

It is our intention in a future number, to present our readers with a delineation of the natural distinctions of the animal called the Flying Squirrel of New Holland, from a specimen lately imported. It will be found in its full growth to be about twice the size of the present, and will make a curious and pleasing addition to our knowledge of that most curious and interesting country, leaving the reader to his own reflections on the wonderful and extensive varieties of Nature, as yet, perhaps, only half unfolded.

The delineation of the present animal is from a specimen belonging to Mr. BULLOCK, (not at present in his museum) of the natural size; the tail has much resemblance in form to a goose quill, being flat and tapering.

*An Account of the Religion and Superstition of
the Modern Africans.*

THE immense continent of Africa, except that part only where Mahommadenism has been impressed upon the faith of the natives by the Arabs, lies buried in the grossest ignorance. The Africans all acknowledge a Supreme Being, the great Creator of the Universe; but they suppose him to be endowed with too much benevolence to do any harm to mankind, and therefore think it unnecessary to offer him any homage. But from dæmons or evil spirits they apprehend great danger, and they endeavour, by all possible means to deprecate their wrath by sacrifice and offerings. These dæmons are supposed to be divided into two classes, the larger kind called the Aymins, are supposed to inhabit, chiefly, the deepest recesses of the forest; and the places dedicated to these spirits are generally such as inspire the spectator with awe, or are remarkable for their strange appearance, as immensely large trees rendered venerable by old age; rocks appearing in the midst of rivers, that have something in the form either gigantic or abrupt. Before they begin to sow their plantations they sacrifice a sheep, goat, fowl, or fish to the Aymin; for were this neglected, they are persuaded that nothing would grow there. In the instance where they sacrifice to the deity of the rock, a part is left for the dæmons, and the remainder is eaten by the votaries. If they should see any of the African Ants carrying away the meat, they imagine that they are taking it for the spirits. The inferior order of spirits are called the Griffes, these are supposed to reside in the skirts of a town, and sometimes even dwell within it.

When liquor is brought in, although there is no sacrifice made, a small part is always set apart for the Griffee; and the natives when rowing in canoes, never pass any of the sacred rocks without stopping to pour out a libation to the residence of the spirit, before they would venture to put a foot upon the Island. It was formerly the custom to perform religious duties in groves planted for the purpose, or the dark recesses of a forest were appropriated to this use; and their custom seems to be followed in Africa at the present day, where under the shade of the Wild Cotton or Pullum Tree, they assemble to perform their sacrifices and other rites.

To the Yahowos, or evil spirits, are attributed all the misfortunes and afflictions occasionable to man; death, wounds, bruizes, and all the unlucky accidents of life are therefore supposed to be reducible from their malign influence. They therefore direct their prayers and supplications to them, as alone capable of appeasing their malevolence. Near the coast of Sierra Leone, superstition seems to acquire a greater power and influence over the human mind; at Whidah the principal national worship of the country is confined to Serpents, and the King Snake, which is much worshiped there, is said to be caught wild and capable of being tamed. They are about the length and thickness of a man's arm, beautiful in appearance, being grey covered with brown and yellow spots. They are harmless and enter boldly every house, in which is meat and drink constantly ready for them, and priests appointed to serve them. The Feteesh also may be reckoned as an important minor deity, and is represented by a snake, leopard, alligator, tree, &c. Upon the Kree Coast every person has his peculiar Feteesh, which is sometimes a goat, a fowl, a fish, &c. all which he never presumes to eat,

Some dare not eat fowls which are white, others dare not eat those which are black. But the most extraordinary worship is perhaps that of the Jackall, which is reckoned amongst their divinities, notwithstanding the number of sheep and sometimes children which they carry off.

At Ningo there is a temple dedicated to them and provided every evening with food, which these ravenous beasts are of course eager to take away. The Soasoos imagine that white is a very pleasing colour to the deity, they therefore when they pray, hold a white fowl in their hand and sometimes a white sheet of paper. The ceremonies of their funeral are accompanied by the most superstitious usages, one of the late Kings, who resided near Sierra Leone, lately died at the River Hunch, whither he had been removed for his health; the body was removed to the town and placed in the Palaver House, a message was sent to the Governor to desire his company at the funeral, the body was carried to the side of the grave, and a number of questions asked from the dead person, by different persons who stooped down to the coffin for that purpose. Pa-demba, a neighbouring chief, expressed his great grief in having lost so good a father, added, "that he and all the people wished him to stay a little longer with them, but as he had thought proper to leave them, they could not help it, but he and all the people wished him well." The umbrella which belonged to the deceased was put into the coffin, because they said he liked to walk with it; the pillow also which he generally used, was put into the grave, and each of the spectators threw in a handful of earth into the grave; as soon as it was closed, the women began a dismal cry, which lasted for a considerable time, until the Europeans had left the town.

The origin of amulets or charms is lost in deep antiquity, the Jews had their Phylacteries, the Greeks their Atropara, and the Romans their Amuleta; in Europe, at the present day, the superstitious practice of wearing amulets still prevails and great faith is reposed in them, when hung round the necks of children to preserve them from diseases.

In the Bullum and Timance towns, greegrees are placed to prevent the incursion of evil spirits or witches, these consist of pieces of rag like streamers, attatched to a long pole, and it would give great offence to remove or even to touch them. Greegrees are often placed in plantations, to deter people from stealing, and a few old rags placed upon an Orange Tree, will generally, though not always, secure the fruit as effectually as if guarded by the Hesperides. This superstitious dread of witchcraft, which may properly be considered as a mental disease, like many of those which the body is subject to, appears to acquire additional vigour by being transplanted from one country to another. Accordingly we find that in the West India Islands the belief in witchcraft is the occasion of as much if not more terror to the natives of Africa, where it is known by the name of Obi, notwithstanding all the efforts made to counteract it.

According to the vulgar prejudice entertained by the lower classes in England, the blacks are said to have naturally a very deleterious poison growing under their nails, with which they frequently destroy those who offend them. This opinion may have originated from the method practised by a tribe of Indians in Guiana, who sometimes conceal under their nail part of the kernel of a nut, which they secretly mix with the drink of any one they hate, and which proves, slowly, but certainly fatal. Capt. STEDMAN

Extracts from Dr. Winterbottom's Travels.

relates that by merely dipping their thumb in water, which they offer as a beverage to the object of their revenge, they infuse a slow, but certain death.

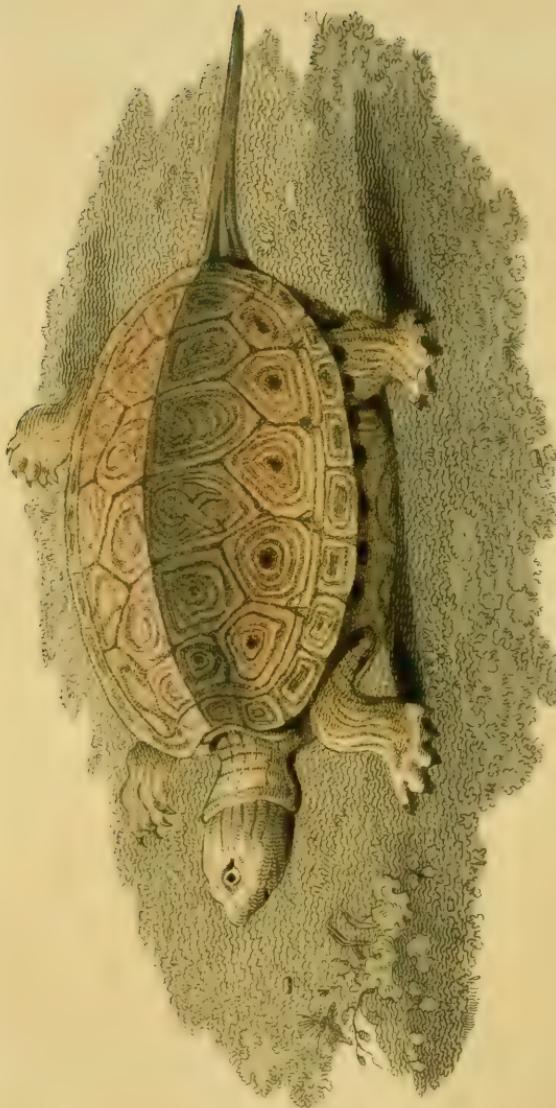
There is another strange practice, which the Europeans accuse the Africans of, which, however, as there can be no real foundation for it, is wrapped up in much mystery and obscurity. It is said they cause the body of any person to swell to a prodigious size, by only blowing upon them, this is sometimes done in so secret a manner, so as not to be observed by the injured party, at other times by blowing a certain substance through a long tube across the path of the traveller. There may indeed be some foundation for the latter, as the natives of Guiana are known to blow through a tube six feet long, a kind of small splinter dart dipped in poison called worrara. It is probable if these arrows possess the poisonous properties attributed to them, that the whole story of blowing is only founded upon idle report, and surmises formed from the most superstitious conjectures.

The principal hinderance of improvement and obstruction of all civilization to the Africans, seems to arise chiefly from two causes, the one for want of a full and due communication with Europe, and the too-free intercourse with the Arabs or Mahomedans. The Negroes can have no desire to cultivate the knowledge or arts of more refined countries, until habit and experience convince them of their own inferiority, and as they can have no favorable opinion of virtue and knowledge going hand in hand in the traffick or examples which they have had before their eyes, in all European countries, they naturally remain in the same superstitious bigotted state, without conviction or the free exercise of their reason.

Extracts from Dr. Winterbottom's Travels.

It is nothing uncommon to find many of the black nations upon the coast, strongly infected with the principles of Mahomedanism, which they learn from the books and practices of the Arabs, and as these persons profess some degree of sanctity and learning, their example is much more likely to draw them over than the boasted mercies of those who have triumphed too long in the reign of perfidy and injustice.

It is to be hoped a happier æra will now arrive, when a period of freedom, mercy, and discussion, will be held out to the ignorant and superstitious African, and that a communication, founded upon justice, shall enlighten all the distant regions of the Atlantic.



T. L. Bushby. sc

G. Perry. del

TORTOISE.

ZOOLOGY.

Genus—TESTUDO, or TORTOISE.

Species—TESTUDO PANAMA Ching-Quaw.

Character.—Body rounded and flattened, armed with scales geometrically arranged, resembling a coat of mail, legs very short, the head retractile, mouth armed with a hooked bill closing over the under mandible.

THIS Tortoise which is here represented for the first time, is drawn from a live specimen, at present in the possession of Capt. HOFFMAN, of Ealing; it has resided in England for three years, and has preserved its health exceedingly well. It is one of the smallest of its kind, hitherto discovered, and is a native of those countries of South America, adjoining to the Isthmus of Panama, inhabiting the fresh water rivers and pools of that region, which is called Terra Firma. Its general and favourite food consists of a small quantity of dressed meat; in cold weather and the nights of winter, it is constantly wrapped up in cotton, which has been deemed necessary to preserve it from the intemperate climate of Britain.

There is no part of natural history which has been subject to more errors, as to particular descriptions, than the genus *Testudo*; there seems indeed at first sight, to be a sort of natural division between the Tortoise, which has its five claws more distinct and lives wholly upon the land, and the Turtle, which exists chiefly as a marine animal, and in which the claws are fin-shaped, or more obscure in their markings, as well as irregular in their number. This division, however, of the Tortoise from the Turtle, is very

obscure, for several species exist, which resort both to the land and sea, or live on the edge of the larger rivers, whose waters are alternately salt and fresh. The present Tortoise from Panama (called by the natives of that country the Ching-quaw) is supposed to be hitherto wholly undescribed, it has a considerable resemblance at the first sight to the **Testudo Literatus** of Thunberg, but differs in the forms and markings of the back, and also in the number of plates forming the external circle. The head, back, and legs are of a bright orange colour, mixed in a very agreeable manner with dark circles of grey, the edges being of a bright gold colour.

The protection which Nature has kindly afforded to this animal, by the strong defence of its armour, is truly wonderful and striking, affording one of the strongest instances of previous skill and design. When retiring from its natural foes, it has the power of concealing its head, legs and tail under a shelly plated covering, which envelope both the upper and under side of its body. The tail is admirably contrived for balancing the motion of the feet, which answer for the purpose of fins, being webbed between the toes like those of a Duck. It is with much difficulty that when placed upon its back in the water, ever it can recover its natural position, and the strenuous efforts, which in this case it always makes, are truly entertaining; but at length by unequally extending its feet and a constriction of the neck to one side, it overthrows the equilibrium and restores itself to the wished-for position. Upon land this is still more difficult and even impossible, the sailors therefore when they catch them upon the beach are in the habit of turning over a great number successively, and afterwards return to carry them off: their eggs also serve as an excellent food.

Z O O L O G Y.

Of the sea Turtles, the most in request is the Green Turtle, so well known to epicures, which amongst other eminent discoveries of the moderns, is now esteemed a most wholesome and delicious food. About forty sloops are employed by the inhabitants of Port Royal in Jamaica, in the fishery; and as the account of the manner of taking them is rather interesting, we shall insert it at length.

“ The inhabitants of Bahama, who are very expert at the art, proceed in small boats to Cuba and the adjoining islands, where in the evening, especially on moonlight nights, they watch the return of the Turtles to and from their nests, some are so large that it takes three men to turn one of them over. At other times they strike at them with a staff or spear about twelve feet long, when tired and exhausted with the pursuit he sinks to the bottom, till those who are most expert in diving will descend and bring them to the top, while another slips a noose around their necks.”

The Tortoise of Ceylon which is extremely small, but elegant in its markings, has a considerable resemblance to the Ching-quaw; or, Panama Tortoise; but cannot be considered as the same animal, being the native of so distant a country, and the description we have of it is rather imperfect.

All the land Tortoises are remarkable for their longevity and their strong retention of life, even after the head has been divided from the body, and in this respect have a striking resemblance to the Eel; some of them have been authenticated to have existed for a hundred years, and one of that age is said to be now living at the City of Oxford.

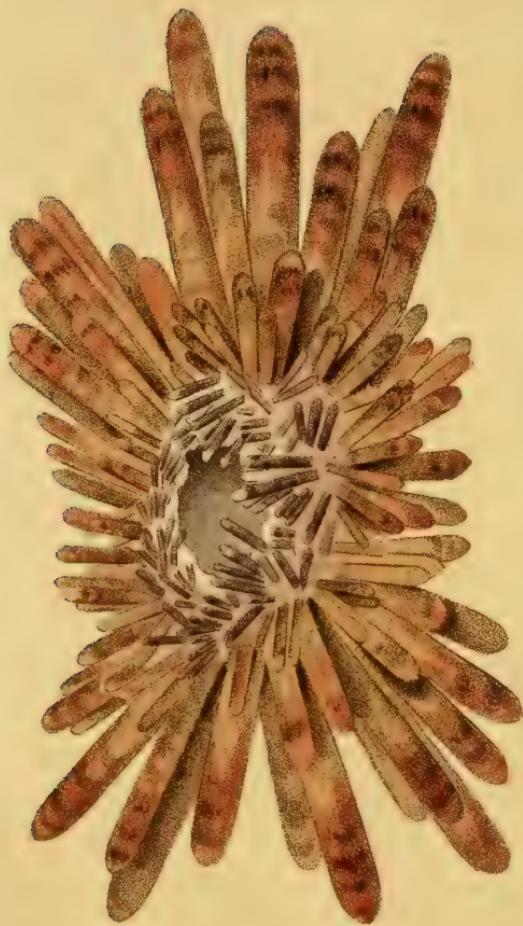
The ingenuity of man has invented from the covering of the Tortoise a great variety of pleasing and useful toys,

Z O O L O G Y.

such as snuff boxes, knife handles, combs, doors of cabinets and other articles of ornament; their only practical disadvantage, and which seems to prevent the more general use of these, is their cheapness, and their yielding in elegance of lustre to the Nacre, or Mother-of-pearl.

The ancient lyre, so much celebrated in the history of Greece and other ancient nations, derives its form from the Tortoise-shell, out of which it was originally formed by the ancient artists, and still appears in the remains of their sculpture and basso-relievos, forming a most pleasing and interesting object. The Romans also adopted the name Testudo, for one of their most celebrated military arrangements in war, which consisted in placing a phalanx of their troops, closely wedged together, in such a manner that the whole of their shields should join at the top, forming a collected covering, like that of the Tortoise, impenetrable to all the arrows, stones, or darts, with which their enemies could assail them.

Thus from obvious hints, originally suggested by the simple forms of nature, arise the grander and more complicated arrangements of man, and from these alone the arts and sciences take their source, and from the Silk-worm, the Nautilus, and the Tortoise, mankind have borrowed the most useful or celebrated inventions, improved and extended through the different ages of the world.



Drawn and Engraved by T.L. Brady

CLUB ECHINUS.

Pub'd by J. Stratton, Sept: 1861.

ENTOMOLOGY.

Order.—NANTES; or, SWIMMERS.

*Genus---ECHINUS MARINUS; or, SEA
HEDGEHOG.*

Species--ECHINUS CASTANEUS.

Character.—Fish inhabiting a molluscous shell or covering, circular or oval, invested with spines, placed in a radiated position and answering for the purpose of legs, by a rotary motion; an opening placed on the underside of the shell, geometrically formed, in some of the species, another opening on the top.

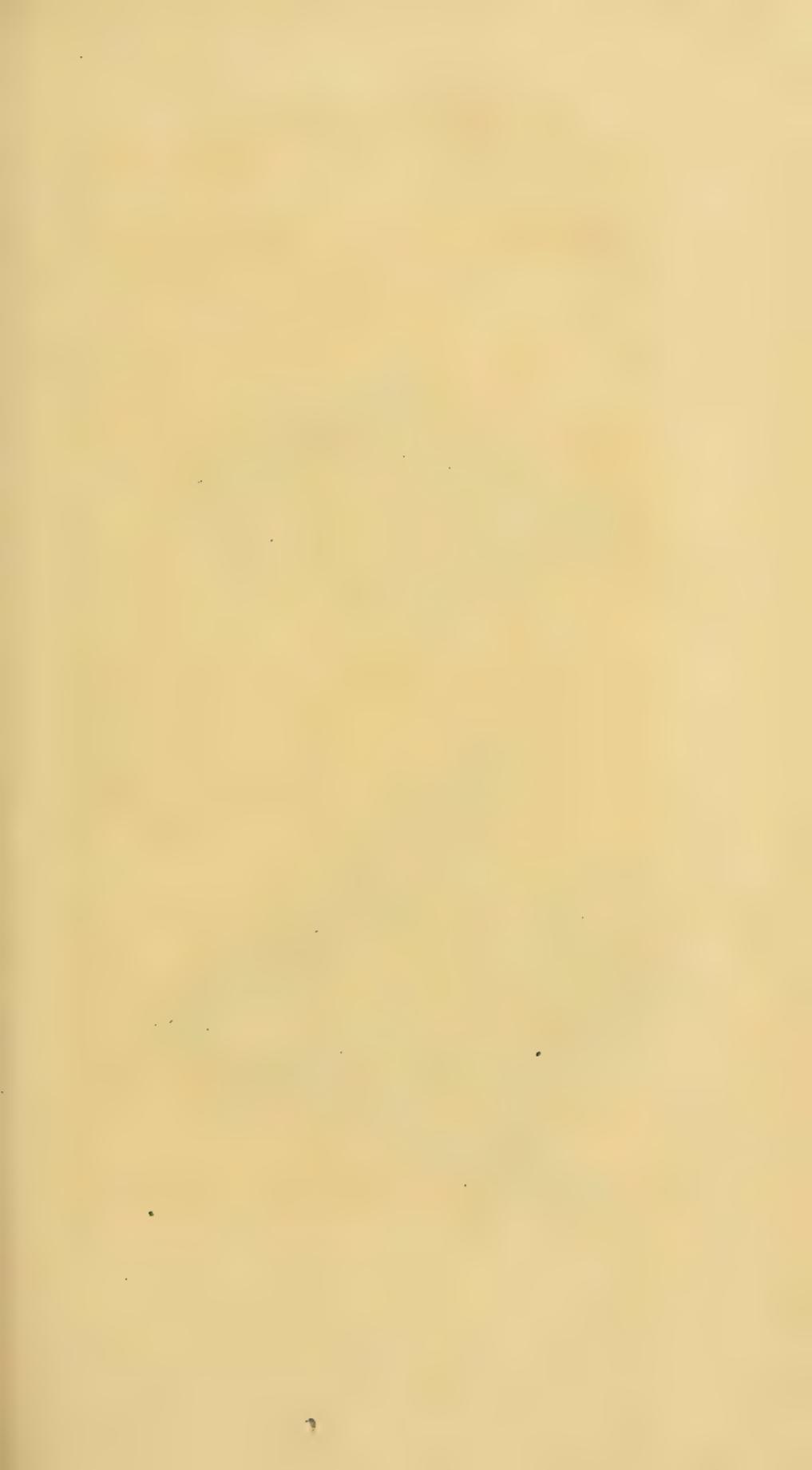
THE *Echinus Castaneus*, which we are now about to describe, belongs to a large and numerous tribe of sea animals, which bear considerable analogy to the *Sea Anemone*, or *Animal Plant*, and partly to the *Polypi*, in the circumstances of voluntary motion, and their radiated structure. Sir HANS SLOANE, in his *History of Jamaica*, has described several varieties of these curious animals, which seem to unite the insect, animal, fish, and vegetable tribes. Their geometrically formed covering, attracts the eye by it's symmetry, and even when it is stripped of its spines by age or accident, it then assumes the appearance of an egg, and by its beautiful tubercles and radiations, is still interesting and delightful. In this state it is frequently found fossil, enclosed in chalk and clay, and is called the *Echinus Galeatus*, *Echinus Cordatus*, &c. and it is curious to observe that none of the fossil specimens exactly resemble the living ones, which are found at the present in the sea. This circumstance would almost lead us to suppose that there had formerly been another creation, being confirmed

ENTOMOLOGY.

by many other circumstances, as that of different animals being found, fish, plants, insects, and shells, none of which have their analogies existing at present in the globe.

To return however to the more particular history of the present animal, the *Echinus Castaneus*, so called from *Castaneus* (the Chesnut,) which it exactly resembles in colour, is a native of the South Seas, and of the coasts of New Holland. It is of an oval form consisting of an arched geometrical body, ornamented with radiated spines of various lengths and of the shape of a club. These are of a flattened form, and the young or smaller ones near the center are of a purple colour. The body is small in proportion to the spines, the largest of which are about five inches long, and there is an opening at the top and bottom of the body, from which different rays issue like ribs down all the sides, having knobs or tubercles, upon which, as upon a hinge, all the spines or clubs revolve. Whether the animal has the power of moving itself by means of these spines, at the bottom of the sea, is not well ascertained, and to say the truth, they do not seem to be very well formed for such an action, though this has been the assertion of some particular travellers as well as naturalists.

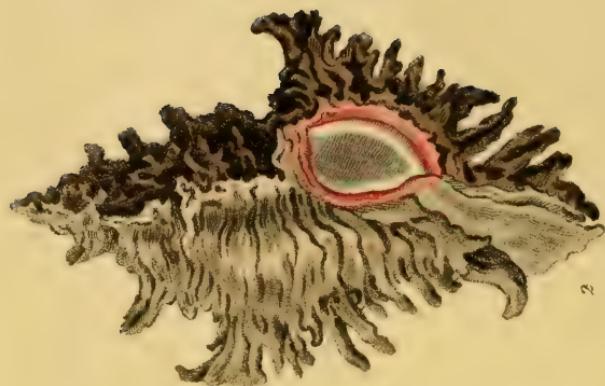
The most singular animal of this tribe, is the *Echinus Sceptriferus*, once in the Duchess of PORTLAND's collection, and at present belonging to that curious museum of Mr. JENNINGS, of Chelsea, and which we purpose to delineate if possible in a future number; it is remarkable for having jointed spines, and is allowed to be exceedingly rare, if not quite unique, and is a native of the Eastern Seas, of Asia, and Ceylon.





TRIPLIEX.

Pub'd by J. Stratford, Sept: 1800.



T. L. Dury del.

CONCHOLOGY.

Genus---TRIPLEX. *Species*--TRIPLEX FLAVICUNDA AND TRIPLEX RUBICUNDA.

Character.—Shell spiral, univalve; the body, spire, and beak invested with three septæ or membranaceous folds, formed into tubercles or spines, the mouth round and carunculated, varying in its colours in the different species.

A DELINEATION of the *Triplex Foliatus* has been already inserted in one of our former numbers of the *ARCANA*, and exhibits similar characters with the two present species. The first, which is now in the possession of Dr. COMBE, is of a singular character and colour, and has lately been discovered at Botany Bay and New Zealand. The mouth is yellow, the body dark brown, but growing paler and brighter towards the top: this shell may be considered as being very rare and valuable. The second is the *Triplex Rubicunda*, a scarce shell from the Island of Ceylon, the body and spire of a dark brown colour, with a bright red lip encircling the mouth, which is of a dark grey within. This shell is always rather smaller than the other, and has been improperly supposed by some collectors, as being of the same species with No. 1. although the analogy of Nature, one would suppose would sufficiently contradict such an opinion, since the red mouth *Triplex* is found at so considerable a distance as Ceylon and New Holland. But there is also a very considerable difference in the size and form, when examined by the eye of a critic or connoisseur.

It will perhaps be necessary to inform the reader, that the shells of the *Triplex* have a strong likeness or relationship

CONCHOLOGY.

to the Monoplex, Biplex, Hexaplex, Polyplex, and a number of other genera, recently elucidated and established by the Editor of this work, in a large work on the History of Shells, shortly intended to be published, and in which the generic arrangement will be upon the same improved plan.

We may perhaps be allowed to observe with what a graceful and variegated beauty Nature has adorned these elegant products of her hand, the branching forms and leafy appendages which ornament the body, the spire, and the beak, the pleasing lustre and contrast of the colours, the form of the mouth like that of a beautiful face, quite in the oval style and richly edged with pearls, which in a drawing it would be very difficult or perhaps impossible to imitate. With regard to the uses of these elegant spinous branches, we are left quite in the dark, and we may naturally suppose that they were constructed thus and thus, in order to arrest the admiration and wonder of all persons endowed with a taste for the beautiful and sublime works of art. It is a singular circumstance that the great LINNÆUS never saw more than one species of this elegant and newly discovered genus, which was the shell which he nominated the *Murex Ramosus*, and not being willing to make a new genus for the sake of one single shell, he crowded it amongst others, which have no natural relationship with it. It is a shell very large, nearly white all over, and is at present denominated the *Triplex Ramosus*.



PAPUAN LORY.

Pub. by J. Stratford, Sept. 1850

ORNITHOLOGY.

Genus—PSITTACUS.

Species—PSITTACUS PAPUENSIS.

Generic Character.—Bill hooked and acuminate and sharply pointed, upper mandible projecting twice the length of the lower one, the head round and slightly crested, the tail long and tapering twice the length of the body; toes, standing two forward and two backward.

THE Parrot which has received the common name of the Papuan Lory, is brought from Papua in the East Indies, and is one of the richest coloured individuals of that extensive and almost numberless tribe of birds. Several naturalists having discovered that these Parrots, when in their own regions, uttered frequently a cry similar to the word lori, gave them the name of Lory, as a denomination, it is likely however shortly to go out of use, as not sufficiently distinctive in other respects, of the various birds which use that sound in particular. We have before remarked in this work how necessary it now appears to have some general reform in the historical account of the Parrots, and on this account we bestowed what we thought a due praise on Monsieur LEVAILLANT, who ably points out the tail as the most proper part for establishing a new set of orders or divisions.

The tail of the present bird has a good deal of resemblance to that of the Ara Miltaris or Military Macaw, described in the fifth number of the ARCANA. The following striking circumstances occur in the general contour of its form, distinguishing it from the rest of its congeners,

ORNITHOLOGY.

The head is very round, smooth, and of a highly polished appearance, and being as well as the neck, of a rich scarlet colour, is surmounted with a slight hairy crest, consisting of black and green feathers, fitting closely. The bill is pointed and sinuated, projecting over the under mandible, and of a bright chesnut colour. The shoulders are tipped with a bright spot of yellow, the middle of the back and wings are of a rich green, below this three colours occur, blue in the center, scarlet and green on each side, and the whole tail is of a dark olive colour, with the exception of the edges which are of an amber or red. In respect to elegance of form and appearance, this bird certainly claims the pre-eminence over most of his compeers, although the eye being placed very much backwards in the head gives it rather an uncouth appearance, something in the same manner as is the case with the Woodcock and Snipe. To those who are admirers of strong contrast and glaring colours, we therefore recommend the Papuan Lory, as Nature establishes varieties sometimes by elegance of form, joined to neatness of pattern; at other times, by an amazing richness and contrast of tints, but seldom bestowing therewith any very valuable qualities of voice or disposition, so that we may exclaim with one of our most favourite poets,

“ Thus is Nature’s vesture wrought,
To instruct the wand’ring thought.”

Extracts from Barrow's Travels in China.

ON THE ARTS OF THE NATIVES.

IN respect to the arts which are invented and adopted by the Chinese, the pride and policy of the government has always been greatly inimical to the progress of the arts and sciences. The Chinese people discover no want of genius to conceive, nor of dexterity to execute, and of their imitative powers, no dispute has ever been made. Of the truth of this remark we had several instances at Yuenmin. The complicated glass lustres, consisting of several hundred pieces, were taken down, piece by piece, in the course of half an hour, by two Chinese who had never seen any thing of the kind before, and were put up again by them with similar facility, and yet it had been necessary for our mechanics to attend frequently at Mr. PARKER's warehouse, in order to be able to manage the business on their arrival in China. A Chinese undertook to cut a slip of glass from a curved piece, intended to cover the planetarium, after two of our artificers had broken three similar pieces in attempting to cut them by means of a diamond. The man performed it in private, nor could he be prevailed upon to say in what manner he accomplished it; being a little jagged along the margin, I suspect it was not cut but fractured, perhaps by passing a heated iron over a line drawn with water. It is well known that a Chinese in Canton, on being shewn an European watch, undertook and succeeded in making one like it, though he had never seen any thing like it before, but it was necessary to furnish him with a spring. The mind of a Chinese is very quick and apprehensive, and his small hands are fitted for the execution of neat work.

The manufacture of silks in China has been established from a period so remote as not to be ascertained by any history. The time, however, when cotton was first brought from the north of India into China, is noticed in their annals.

The Nankin cotton is supposed to be naturally of that colour, it having been frequently raised at the Cape of Good Hope, as an experiment, and the pods were always found to be of a buff or Nankin colour. But of all the mechanical arts, the carving of ivory has attained the greatest degree of perfection. In this branch they stand unrivalled: even at Birmingham, where I understand it has been attempted by a machine, to cut fans in imitation of the Chinese, but the experiment has not produced any articles at all equal to the other. Nothing can be more exquisitely beautiful than the fine open work displayed in a Chinese fan, the sticks of which it seems are cut singly by the hand, as a shield with the arms, or a cypher may be finished on the article at the shortest notice, and close to the drawing. From a solid ball of ivory with a hole in it not larger than half an inch across, they will cut from nine to fifteen distinct hollow globes, one within another all loosely moving, and capable of being turned round within, in all directions, and each of them carved full of open work. Models of temples, pagodas, and other pieces of architecture, are beautifully worked in ivory, in short all toys are executed in a neater manner and cheaper in China than any part of the world.

The Bamboo is useful for a thousand purposes of furniture or ornament, and the discovery of making paper from straw, although new perhaps in Europe, is of very ancient date in China, the straw of rice and other grain, the bark of the Mulberry tree, Cotton shrub, Hemp and Nettles, and other plants and materials are used in the

paper manufactories in China, where they are prepared so large as to cover a whole floor. Many old persons and children earn their livelihood, by washing the ink from written paper, which being afterwards beaten and boiled to a paste, is re-manufactured into new sheets, and the ink also is saved from the water, and preserved for future use.

As to the art of Printing, there can be little doubt of its great antiquity in China, yet they have never proceeded beyond a wooden block. The nature indeed of the character is such, that moveable types would scarcely be practicable. It is true the component parts of the characters are sufficiently simple and few in number; but the difficulty of putting them together upon the frame, into the multitude of forms of which they are capable, is perhaps not to be surmounted. The power of the pulley is understood by them, but only in the single state, at least I never observed a block with more than one wheel in it. The principle of the lever should also seem to be well known, as all their valuable wares, even silver and gold are weighed with a steel-yard, and the tooth and pin iron wheels are set in motion by a water wheel. But none of the mechanical powers are applied on the great scale to facilitate or to expedite labour. Simplicity is the leading feature in their contrivances for the arts, and each tool answers several different ends. Thus the bellows of the Black-smith is nothing more than a cylinder of wood with a valvular piston, which besides blowing the fire, serves for a seat when set on an end, and as a box to contain the rest of his tools. The Barber's Bamboo basket contains his shaving apparatus, and serves when turned down as a seat for his customers. The Joiner's rule being strong, serves as a walking stick, the chest which holds his tools serves him to work on as a bench. The Pedlar's box and large umbrella serve to exhibit all his wares, and to form his little shop.

Little can be said of their art in poetry, either ancient or modern, the language being obscured so much by metaphor, as to speak rather to the eye than the ear. Of their music I have little to observe, it does not seem to be cultivated by them as a science, nor is it much cultivated by females of high life, except by those who are educated for sale, or hired out for the entertainment of others: the women generally perform on the pipe or flute, the gentlemen on guitars of two, four, or seven strings: they seem in their chorusses, to delight in the intensest of the noise, and for this purpose the gong is admirably adapted: they have a kind of clarionet, and their kettle drums are shaped generally like barrels. The Chinese are quite unacquainted with the counter point, although they sometimes take an octave, and indeed it is not to be wondered at, as the elegant Greeks were unacquainted with it, and it was unused, even in Europe, till the monkish ages.

With regard to painting, they must be considered in two different respects. In history, as miserable daubers, unable or unwilling to execute any thing well.

In drawings of natural objects, such as flowers, birds, and insects they imitate with a great degree of exactness and brilliancy of colour, whatever is presented to their view. In landscapes they finish their pictures with great minuteness, but are deficient in those strong lights and masses of shade which give force and effect to the imitation. In the perspective delineation of buildings, there are many oversights in the arrangements of the outlines. The specimens of beautiful flowers, birds, and insects, brought over to Europe, are the work of artists at Canton, where from being in the habit of copying prints and drawings, carried thither for the purpose of being transferred to porcelain, or as articles of commerce, they have acquired a better taste

than in the interior parts of the country. Great quantities of porcelain are sent from the potteries to Canton perfectly white, that the purchaser may have them of his own pattern, and specimens of these bear testimony that they are no mean copyists. In a country however, where painting is at so low an ebb, it is in vain to look for excellent works of sculpture. Grotesque images of ideal beings and monstrous distortions of nature are sometimes seen upon the balustrades of bridges, and in their temples, where the niches are filled with grotesque figures of baked clay, and sometimes gilded or covered with varnish. They are as little able to model as to draw the human figure with any degree of taste or elegance; which is easily accounted for by their always drawing from themselves. Their pagodas however, have a very picturesque and pleasing effect, especially as they are generally placed on an eminence. Large four-sided blocks of stone or wood are frequently erected near the gates of cities, with inscriptions on them, meant to perpetuate the memory of certain distinguished persons. Their architecture however, in general is slight and unsolid, their pagodas being the most striking objects, the houses, and indeed the palaces of state, built very low; their temples are mostly constructed upon the same plan, with the addition of a second or a third story, standing upon the roof. The wooden pillars that constitute the colonade, are generally of Larch Fir, of no settled proportion between the length and the diameter, and they are invariably painted red and sometimes covered with a coat of varnish. Next to the pagodas is the most stupendous wall which it is supposed was raised many hundred years ago, to prevent the irruptions of the Tartars, dividing their country from all the north part of China. It is built upon the same plan as the wall of Pekin, being a mound of earth, cased on each side with bricks or stones. The astonishing magnitude of the fabric consists not so much in the plan of the work as in the

immense distance of fifteen hundred miles, over which it is extended, over mountains of two or three thousand feet, in and across deep vallies and rivers. But the thick mass of the walls has been calculated, and this is found to be so great that all the materials of the houses of England and Scotland are supposed to amount to less than the bulk of the wall of China. The projecting massy towers of stone and brick are not included in this calculation. These alone are supposed to be equal to all the masonry and brick-work of London. To give another idea of the mass of matter in this stupendous fabric, it may be observed, that it is more than sufficient to surround the circumference of the earth, on two of its great circles, with two walls, each six feet high and two feet thick.

We shall now turn to a work of greater general utility, and scarce of less magnificence and grandeur. This is what has usually been called the Imperial or Grand Canal, an inland navigation of such extent and magnitude, that no other can compare therewith. The antiquity of its formation is said to be very great, it has however received many important repairs, and three of the largest rivers in the Empire carry off the superfluous water to the sea. The difficulties of such large embankments as must have been necessary for such a work, as well as the excavations, fill the mind with the greatest astonishment at the amazing perseverance and industry of the great body of the people of China.

The only parallel perhaps, which can be drawn is from the gigantic pyramids of Egypt, or in the walls of the ancient cities of Thebes or Babylon.



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Drawn by G. Perry

Engraved by T. L. Busby.

Pub'd by J. Stratford, Oct 1850.

ENTOMOLOGY.

Genus--PAPILIO. Species--PHALÆNA.

Generic Character of the Papilio—Body covered with hair, the wings plain, the antennæ armed with a capitulum or small knob placed at each extremity.

Generic Character of the Phalæna—Body covered with hair as well as the wings, the antennæ differing in the two sexes, in the male single, short, and thread-shaped, in the female long and branching out and bushy in its texture, having no knob or capitulum at the end.

IN a former number of the *ARCANA*, we have delineated two species of the Genus *Fulgora*, or Lantern Fly, and endeavoured to point out to our readers, the distinctions of its form, by which it is separated from the butterflies and moths. It is a circumstance well known to Naturalists, although not to every transient observer of the curious works of creation, that the butterfly and moth undergo several astonishing changes, previous to their acquiring their winged or perfect state. In the first place, the parent insect deposits the egg safely under some bough or leaf of a tree or shrub, which in time becomes a creeping animal called a caterpillar, this afterwards weaves for itself a warm kind of covering, in which after laying in a dormant or torpid state for several weeks or months, it bursts forth from its covering and becomes a Fly endowed with wings. This singular dormant situation is named the *crysalis* state, and when the creature arrives at the fly-state, it becomes a parent to a numerous progeny of eggs, which in process of time undergo the same different changes. The latter circumstances

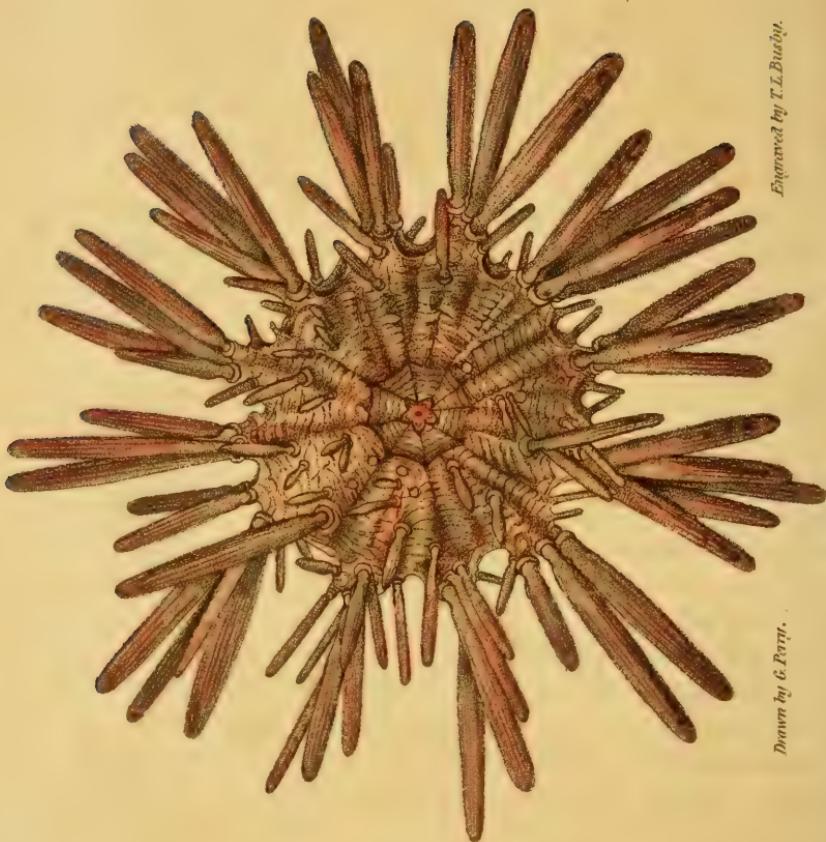
ENTOMOLOGY.

of its life have been considered by moralists as a striking emblem and imitation of the soul, which after the long sleep of death, suddenly awakens with a renewed vivacity to a life of more exalted perfection and renewed existence.

To return more immediately to the subject before us, the upper fly represents the *Papilis Phillis*, so named by the learned insectologist Fabricius. It is a native of Mexico, and the Brazils, and is delineated from a beautiful specimen in the collection of Mr. WILLSHIRE of Chelsea. The upper wings are black with a band of red in the middle of each; there is also a yellow band, running each way from the body; upon the whole it may be considered as a very pleasing specimen of the natural family *Orbati*, in which all the wings are rounded in their shape.

The second represents a Moth the *Phalæna Corollaria*, an insect from North America, very distinguishable by its circular spots, those of the under wing being deeply shaded with blue, the general colour of the whole fly is of a soft and pleasing yellow. The *Phalæna* or Moth is chiefly distinguished for the soft and downy appearance of the wings and body, and in general the colours are not so gay and vivid as in the *Papilio* Genus.

The antennæ in this instance are branched and rounded in their outline, which circumstance characterizes the female moth, which unlike the *Papilio*'s have their antennæ differently formed in the opposite sexes. Nothing satisfactory has hitherto been discovered of the uses of the antennæ, some authors have supposed that they are an organ of smelling, others that they are for the purpose of hearing, and it is most likely the subject will remain in doubt, until their instincts and anatomy have been in a farther degree understood.



Drawn by G. Penn.

Engraved by T.L. Burgh.

EGGELINUS STELLARIS.

Pub'd by J. Strutt and Co. Ltd.

ICHTHYOLGY.

Order--NANTES, or SWIMMERS.

Genus--ECHINUS MARINUS, or SEA HEDGE-HOG. Species---ECHINUS STELLARIS.

Generic Character—Fish inhabiting a molluscous shell or covering, circular or oval, invested with spines placed in a radiated position and answering for the purpose of legs, by a rotatory motion; an opening placed on the underside of the shell, geometrically formed, in some of the species another opening on the top.

OF the various families of animated nature, which by their natural situation are more abstruse and hid from human investigation, may be classed the Echinus, of which we have already described one species (the Club Echinus) in a former number of the *ARCANA*. The present elegant specimen of that curious and interesting genus is delineated from a very perfectly preserved one brought from the South Seas, and now deposited in Mr. Bullock's Museum. The centre of the animal is circular and flat, having an opening at the top and bottom, geometrically divided into six partitions, resembling a piece of basket-work interwoven with the young spines, shooting from the sides and the top. The body of the animal is of an orange or flesh-colour, the lesser spines are of a colour inclining to a pale red, and seem as if bursting their way through the crevices of the external surface. The largest spines are more remote from the centre, of a dark purple brown, inclining in some of them to a grey colour, and the opening both above and below is furnished with an hexagonal lid, having several small openings, through which it is supposed the animal breaths. The form of the whole is both interesting and singular, as the

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spines are placed in bunches, collectively, forming a radiated and diversified appearance, highly ornamental and pleasing. We have therefore (it being hitherto undescribed by any author) to mark it by a distinction and to separate it from its congeners, which are very numerous, given it the specific name of the *Echinus Stellaris*, from a fancied resemblance to the twinkling rays of a star. It may be indeed remarked as a very fortunate circumstance, that the spines should be so well preserved, as that part is the most apt to suffer from carriage and external injury. We present it therefore to our readers, undecorated by any gaudy lustre of colours, not doubting that the curious construction exhibited in its formation, will entirely atone for want of splendor. The infinite variety of the works of the Creator, as exhibited even in the less beautiful objects of investigation, are sufficient to excite wonder and astonishment even in the most uninformed minds, much more so with those cultivated by knowledge, who, as the divine Shakespear has so admirably expressed it, can still find

“ Books in the running brooks;
Sermons in stones, and good in every thing.”



Drawn by G. Perry

Engraved by T. L. Busby

CONUS PARTICULAR.

Pub'd by J. Stratford, Oct'r 1810.

CONCHOLOGY.

Genus-CONUS. Species-CONUS PARTICOLOR.

Generic Character—Shell univalve, spiral, oblong, spire short, no beak, the mouth oblong and narrow, ending at the base in an open channel rounded. The whole form of the shell having the shape of a cone, angular and pointed.

OF the natural history of Shell Fish, it appears that the greatest part remains at present unknown. Of the small microscopic shells, which do not exceed an eighth of an inch in size, no work has hitherto been published. Of the Fossil Shells we may also make the same observations, except a slight essay by Dr. SOLANDER upon the Fossil Shells of Hampshire, which can contribute little to the general knowledge of them. Some of the very minute shells have been published in a partial manner by Soldani Fichtel, and Dr. Boys, but the plates are so inaccurate, that they convey no positive information to the mind of the reader as to their general forms.

Amongst the shells at present known to exist in the sea, the Genus *Conus* affords us, perhaps the greatest numbers, and most highly coloured varieties; and amongst these, we have singled out the shell at present to be described. The *Conus Particolor* is a shell of a beautiful taper form resembling the *Gloria Maris*, formerly described in this work, in its general shape. It is elegantly variegated with a dark map-pattern of brown and white, and the colour of the mouth varies in different subjects. When we contemplate the variety and richness of colours, presented to our minds in the tribes of Shell Fish, we cannot help suggesting who

C O N C H O L O G Y.

many useful hints the ingenious artist or painter might derive from them. The forms are generally mathematical, by which circumstance the study of their shape would adapt his mind to the principles of perspective; and the harmony of the colours would unfold to his thoughts the scientific principles of Titian and Corregio: The forms of some of the Cerithiums and Terebras would serve admirably to convey to his fancy the most pleasing designs for obelisks or pyramids. Thus the study of Natural History and of the useful Arts, might be made subservient to each other, and a general taste predominate, founded only upon the true and unchangeable principles of Nature.

The idea of the Ionic capital seems to have been first derived from the examination of the fossil *Cornuammonis*, which is very common in Greece, and others might very probably be adopted equally ornamental and useful, in the various arts of human invention,



SANGLIN MONKEY.

Pub'd by J. Stratford, Oct. 1810.

ZOOLOGY.

Natural Division—CERCOPITHECA, or SANGLIN MONKEY.

Fourth Order—SAPAJUS, having prehensile Tail.

Species—SAPAJUS JACCHUS.

ONE of the most extraordinary considerations which occur to the human mind in the contemplation of nature, is the singular resemblance to the human face which appears in all the Monkey Tribes at present discovered: nor is the similitude less striking in the form of their hands, feet and bodies.

Previously to a more particular description of the present animal, it will be necessary perhaps to inform the reader, that the Monkey Tribe may not improperly be divided into four orders, according to their most striking anatomical distinctions.

First. The Simia or Ape, walking upright, having no external tail, the large toe of the foot divaricated and standing short and separate from the rest.

Secondly. The Baboons, walking oblique, having in general a short tail, the nose horizontally placed like that of a dog, in their nature fierce and untractable.

Thirdly. The Monkies distinguished by a round face and a long tail, covered with hair.

Fourthly. The Sapajus, or Prehensile Monkey, having a long tail, capable of hanging thereby to different bodies, and by coiling this round the boughs of trees or

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other objects, it is much assisted in its motions ; the head is variously shaped. The Sapajus, or Sapajou, is found only in the Continents of North and South America, forming a distinct race of creatures peculiar in all their habits.

Much has been discussed respecting the reasoning qualities of the Monkey ; and it has been asserted by very respectable writers in Natural History, that the Orang-Otang, when taken young, is capable of various domestic services to mankind, such as laying the table-cloth, cleaning shoes and boots, eating from a plate, &c. but these are rather to be considered as the effects of imitation than of reason, and there is no doubt that if their keepers were to provoke them to anger, that all their fancied docility and sagacity would immediately vanish, and the brutish temper quickly regain its ascendancy. The quality which is denominated Sagacity or Instinct, seems to abound much more in the Elephant, the Horse, and the Dog, approaching very nearly in these creatures to what we denominate in man, Reason.

The Sanglin Monkey, which is delineated from a live specimen in Mr. POLITICO's Menagerie, Exeter 'Change, is an animated and sociable little creature, not much exceeding in point of size the Squirrel-Tribe; the face is round, the nose short and flat, and his long whiskers give him a ludicrous and yet expressive physiognomy. His habits are placable, and suitable to his small powers of strength, his tail is long and narrow covered all over with short hairs. It is a native of the Brazils, and is said to subsist upon fruit, small snails and insects : like all other of its congeners its chief residence is amongst the trees, in the highest branches of the forest, where it is secured by its smallness and agility from the attacks of the larger animals of prey.

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There is in the two different specimens which we have observed, a remarkable white square mark placed in the middle of the forehead, but this may perhaps not be common to the whole of the species. The animal above described used to carry on frequent battles with his keeper with nut-shells, in which he displayed singular skill and dexterity; when he was intentionally presented with a few deaf nuts, he displayed considerable contempt and anger, and continued sullen for a long time after. But the most remarkable instance of an approach to reason in these creatures, is mentioned by EDWARDS in his *Miscellanies*. “A pair of these animals, which belonged to a merchant at Lisbon, in their state of confinement, brought forth young ones at that city. These at their birth were exceedingly curious, having no fur, they used frequently to cling fast to the teats of their dam, and when they grew a little larger they used to hang upon her back and shoulders. When she was tired she would rub them off against the wall, or whatever else was near, as the only mode of ridding herself of them. On being forced from her, the male would very affectionately take his turn of nursing, and allowed them to hang round him, for the purpose of giving ease to the dam.” Monkies are excessively troublesome in the gardens and plantations of South America, as they sometimes descend in large parties from the woods, in the night, leaving the marks of their depredations too obviously in the morning.

An instance of their officious activity lately occurred at the house of a gentleman who had received a monkey of the larger kind, as a present from abroad, and who, while the family and servants were at church on a Sunday, used to amuse himself with shaking the boughs of a large apple tree, to which he was chained, over a pig-stye, and which the pigs were busily employed in devouring.

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The instinct or docility of the Orang Otang exhibits however, many instances of sagacity more remarkable, and if speech had not been denied them, would have served to have filled up a more exact gradation of the human race, from man to the brute. How infinitely does the divine gift of reason elevate the faculties above the animal creation, independent of the anatomical differences, which Dr. TISSOT, the first who anatomized the Orang Otang, has so ably pointed out. The chief differences in the form of the skull are the following, the upper part is smaller and lower than in man, the brains much less in quantity, the occiputal aperture much smaller, the nose flatter, and the ears more prominent; we may also add to this that he cannot walk so erect, owing to a particular disposition of the muscles of the thighs. The Orang Otang in his wild state is a melancholy, unsocial animal, either incapable or unwilling to unite himself to those of his own race, unlike the generality of the monkey kind, a difference, which is very providentially appointed, since his strength and numbers might in that case have been obnoxious to man. As it is, he fills up that space in the chain of animated nature which gradually descends from the European to the Negro, and from the Negro to the Brute, and is calculated by his deficiencies of intellect, to raise in the mind the warmest gratitude for those wonderful attainments and advantages, which the light of reason and revelation can alone impart.

*Extracts from the Travels in China, from Sir
George Staunton's Account.*

UPON our arrival at the town of Tacoo in the white River, a considerable guard of Chinese soldiers were destined to attend the Ambassador on shore. Whenever an European went ashore from any of them, the presence of a soldier with him, announced the immediate protection of the government, and might have been intended also as a check upon his conduct. Besides the yachts intended for landing the passengers, a large quantity of river lighters were provided for the discharge of the presents. The chief conductors of the Route Chowtagin and Vantagin waited frequently upon the Ambassador, not only to pay their respects to him, but to take his commands in any case requiring their accommodation or comfort. A separate table for the gentlemen in each yacht was served up in the manner and with all the delicacies of the country, and sometimes also, in an awkward imitation of English cookery. The Chinese method of dressing victuals, consisted chiefly in stews made from animal substances, divided into small square pieces mixed with vegetables, and seasoning them with a variety of savoury sauces and a combination of opposite tastes. The meat most plentiful was beef and pork. The common fowls of Europe were also common here. Among the most expensive articles and accounted the greatest delicacies at the table, were the nests of a particular kind of Swallow, which were from a very distant part of China, and the gelatinous fins of the Shark, both of which afford rich and nourishing juices, but require like the Turtle, an admixture of strong spices to be much relished. With a view to gratify, as was thought, the English appe-

tit, instructions were given by the Mandarines to roast large pieces, such as pigs, turkies, and geese entire. This is a mode of preparing food which did not appear to have been very well executed by the Chinese cooks.

Baking bread was as little understood as roasting meat, no proper oven was to be seen in this part of the country; instead of bread, boiled rice or other grain was generally used. The rice swells considerably in boiling, and this operation is supposed to answer the purpose of fermentation of the dough in regard to bread. To each yacht were sent jars of a yellow vinous liquor, and also a distilled spirit. The management of the latter seems to be understood better than the former, for the wine was generally muddy, indifferent in taste and soon grew sour. The spirit was strong and clear, and seldom partook of any empyreumatic odour. In some of the Chinese provinces it is distilled from Millet, in others from Rice; it is called by the Chinese show-choo, which means hot wine.

Supplies were received also of peaches from the neighbourhood of Pekin, in which province they chiefly flourish; apricots, oranges, and grapes, also sugar candy and brown sugar from Fochien.

During the Ambassador's stay at Tacoo, there was an interchange of visits between the Viceroy of the province and himself, he came also one hundred miles to compliment his Highness upon the occasion. He was tottering with age, but dignified, and venerable and polite without any particular restrain or parade; there was nothing particular in the present meeting, only that the tea was brought in cups with covers and infused in each cup separately, the leaves remaining at the bottom of each cup, and that the

simple infusion of this herb was thought by the host, if not by the guests, preferable to its mixture with cream and sugar.

The fields in this part of the country exhibited a high state of cultivation, and were covered with the *holcus sorghum*, or tallest of the vegetables producing esculent grain, commonly called Barbadoes millet. It grows ten or twelve feet high, and the lowest calculation of its increase was one hundred fold.

The weather being very warm, several of the troops carrying fans with their military arms: fans are worn in China equally by both sexes and by all ranks, and this use of them at the parade, will appear less surprising to those who have observed sometimes officers in other parts of the East, exercising their battalions with umbrellas over their heads.

Amongst other instances of attention from the Viceroy, a temporary theatre was erected opposite to his Excellency's yachts. The outside was adorned with a variety of brilliant and lively colours, and an attempt by strong contrasts to encrease their effect; the inside was managed in a gay and pleasing style of ornaments; and the actors exhibited, during the day, several pantomimes and historical plays.

The Chinese have no Sunday nor even such a division as the week; the temples are however open every day for the visits of devotees. Persons of that description have from time to time made grants though to no great amount, for the maintenance of their Clergy, but none of the lands are subject to ecclesiastical tythes. A land tax to government has been substituted in the last reign, to a poll tax, as better proportioned to the faculties of individuals; a transil

duty is likewise laid on goods passing from one province to another.

Near Sanchoo wheat was perceived growing for the first time by the present travellers, it was about two inches above the ground, and though on a dry sandy soil where no rain had fallen for three months, looked remarkably well. It was very neatly sown in drills or dibbled, according to the method used of late in some parts of England; that of scattering the seed by broadcast, which on very few accidental occasions only is ever practised by the Chinese, has been found by them to be attended with a considerable loss of seed as well as diminution of the crop, which when such a method is used, is apt to grow in clusters while other parts are scarcely covered. The drill method serves likewise to employ the women and children, for which little strength is required. A gentleman of the embassy calculated that the saving of the seed alone in China in this drill husbandry, which would be lost in that of broadcast, wou'd be sufficient to maintain all the European subjects of Great Britain.

In the Province of Shan-tung were seen growing small plantations of tobacco, but more of the annual cotton plant. The cotton forms much of the cultivation of this and the adjoining southern Province of Kiang-nan nor is it much neglected in those places to the northward, where the pods can be carried to perfection before the severe frosts set in. It is not uncommon for the cultivator to lop off the tops of the cotton leaves in order to increase the number of pods and hasten their production.

In the vicinity of the River Luen and the larger lakes adjacent, we first met with the Leutze or famed fishing bird of China, which is instructed in the art or practice of sup-

plying his owner with fish in great abundance. It is a species of the Pelican, resembling the common Cormorant. Its body is of a brown colour, with the throat white, the tail rounded and the bill yellow. On a large lake close to this river, are thousands of small boats and rafts built entirely for this species of fishery. On each boat are ten or a dozen birds, which at a signal from the owners, plunge into the water, and it is astonishing to see the enormous size of the fishes with which they return, grasped firmly in their bills. They appeared to be so well trained that it did not require either ring or cord about their necks to prevent them from swallowing any portion of their prey, except what the master was pleased to return them for encouragement and food. The boat is lightly made and carried by the shoulders of two fishermen with a pole, the birds being generally perched in the middle.

In the marshy grounds which surround the lake, we discovered the singular plant called the *Nymphaea Nelumbo*, a kind of large and beautiful Water Lilly. The Chinese have always held this plant in such high value, that at length they regard it as sacred. That character however has not confined it to merely useful or ornamental purposes, as it also introduced by them to the table. The seed are very numerous and like an acorn in shape, the taste more delicate than almonds. The roots are cut into slices and in the summer served with ice. They are also laid up with salt and vinegar for the winter. This plant has been supposed by some authors to be the Lotus of the Egyptians, but there are no sufficient proofs to confirm such an opinion.

The Chinese have also several other species of the *Nymphaea*. The flat grounds adjoining the rivers serve as plantations for the cultivation of the rice, and from these by

contrivance of irrigation and flooding of all parts of the land, the Chinese husbandman will raise two crops of rice, or one of sugar, in each year, he then suffers the land to rest till the following spring, when the same process is repeated. And thus from generation to generation successive crops are reserved from the same soil, without the least idea of any necessity to let the earth lie fallow or idle for a year. The mulberry trees which are used for the cultivation of the silk worm do not seem to differ from the common mulberry trees of Europe, they are planted in rows ten or twelve feet asunder, in beds of loamy earth, thrown about a foot high above the other surface.

The insect Silk-worms are nursed in small huts erected for that purpose in the middle of the plantations, in order to be retired from all noise, for the Chinese remark that even the barking of a dog will do some injury to the worms. Some are reared however in the towns by persons who buy the leaves for that purpose, and the eggs are placed upon paper until the period of hatching arrives.



Drawn by J.C. Whittle, from a rare animal in the menagerie of M. Knobell. Engraved by T.L. Dury.

ZOOLOGY.

Genus--BRADYPUIS.

Species--BRADYPUIS STRIATUS; or, WEASEL SLOTH.

Generic Character.—*Bradypus*, or *Sloth*; number of the claws uncertain; four cutting teeth in front; the body elongated, covered with wool; ears bushy and spreading; the head flattened in front; the legs short and depressed; each foot armed with long prehensile claws; the general colour cinereous, verging to a black; the form of the molars unknown.

THE singular forms of the Wombach and the Koalo, have already engaged our notice and attention in a former part of the present work, and which being lately discovered, have not been examined with that anatomical attention to their structure which could reasonably have been wished. The present animal bears a considerable analogy to them, and also to the Weasel in its general form, and is supposed to reside sometimes in trees, as well as upon the ground, feeding upon insects, larvae of Moths or Caterpillars, &c. It has been exhibited alive in London, by Mr. KENDRICK, within the last few months, (from which the drawing was taken) and is reported to have been found in South America; this fact may perhaps, however, require confirmation, as we have no doubt that at present it may be considered as a new-discovered animal, and undescribed by any author, ancient or modern. This singular creature was about two feet in length, of a dark colour of a cinereous cast of shade, black above and brown below, the centre white, with three longitudinal black stripes, the centre one thickened in the middle of the back, the eyes surrounded with a white ring, very bright and

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sparkling, and on the centre of the forehead, a circular white spot placed in the middle between the eyes. The body covered with a long coarse bristly wool, the legs and under-side of the body of a rich pleasing brown colour.

There seems in this animal to be a general resemblance to the Ursus or Bear species, and we much regret that we had not an opportunity of a more minute examination into his form and qualities, which might have tended to throw some light upon his natural history; but by its being shortly after the present sketch was taken, removed from London, no opportunity of that kind has yet occurred.

It were much to be wished, that a Society of Naturalists were established for the express purpose of investigating and promoting all new discoveries, in respect particularly to quadrupeds, imported from distant and unexplored countries, by whom artists might be employed to draw and anatomize the various species as they occur, and offering particular rewards for the most curious kinds, or such as could be conveniently brought over the seas alive; such a subject would be highly interesting in the extension of the knowledge of physic, and would form at once a focus for the reception and dissemination of every animal hitherto unknown. A National Menagerie, if constructed upon liberal and scientific principles, would undoubtedly meet with the patronage of the public, to whom the expences of a trifling admission with money, would, in a short time, more than reimburse the incidental or annual charge of such an establishment. This would prove a permanent foundation for increasing knowledge, and in its progress, might be found worthy of the British Nation, and an object even of Royal Patronage.



Drawn by G. Perry

Engraved by T.L. Busby

MONOCULITHOS.

Pub'd by J. Stratford, Nov. 1820.

CONCHOLOGY.

Fossilia--FAMILY, NANTES; OR, SWIMMERS.
Genus--MONOCULITHOS. Species--GIGANTEA.

Generic Character.—Body tripartite, narrow at the commencement of the tail; the head gibbous and flattened, having two projecting tubercles, resembling eyes; cheeks hexagonal and scaly; mouth central and elongated; the body and tail covered with arcuated ribs; the tail ending in three small points joined firmly to a pointed base.

THIS singular petrification of the animal above described, supposed to have been originally marine, and deposited by the sea at the time of the Deluge, is found plentifully in the lime-stone rocks of Dudley in Staffordshire, and other species are occasionally discovered in Derbyshire, also in Germany and Bohemia. The difficulty of knowing with what living creature it was most natural to place them, has very much puzzled every naturalist, and on this account it has been named by some, the *Monoculus Paradoxus*. From a general resemblance, however, which it has to the animal called *Monoculus*, it has received its present name; in which we are justified by the remarks of LINNÆUS, and the late ingenious and much lamented naturalist, Mr. MARTIN of Buxton, author of an *Essay on the Derbyshire Fossils*.

The present curious specimen, however, is wholly undescribed by any author whatever, being much larger and of a different pattern to those hitherto described, for which reason we have denominated it the *Gigantea*, and *Monoculithos* or *Monoculus* turned to stone,

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The specimen is of a brown colour and finely preserved, and forms one of the most valuable and curious petrifactions of Mr. BULLOCK's Museum, which has induced us to make the drawings of three others which are smaller, in the same collection, with which it is purposed to present our readers in the ensuing Number, to shew the various species of this singular natural production.

Some light has lately been thrown upon the history of these creatures by Mr. MARTIN, who has discovered by microscopic inspection that the surfaces of the tubercles on the head are reticulated in their appearance, which he supposes to be a proof that they are really the natural eyes. This fact, however, we may be allowed to doubt, since in some of the individual species, six or ten, or even fifty tubercles occur upon the head, which unusual number seem contrary to the laws of nature. We should be very happy to find out that some ingenious naturalist could discover by analogy the uses and characters of the different parts and organs, at present the dissertations of these abtrusive but interesting objects, must rest in the present state till the more fortunate discovery of additional specimens, either in a living or fossil state, which may clear away the difficulties, presenting us with a series of forms, more general and connected in their analogies. In the mean time we may be allowed to express our surprize that such marine animals as these, for such they undoubtedly are, should all have become extinct by means of the flood, and that none should have been preserved in their own element.

The variety of marine insects found in various parts of the mountains of lime-stone and chalk, attest in the strongest manner the universality of the deluge. The petrified oys-

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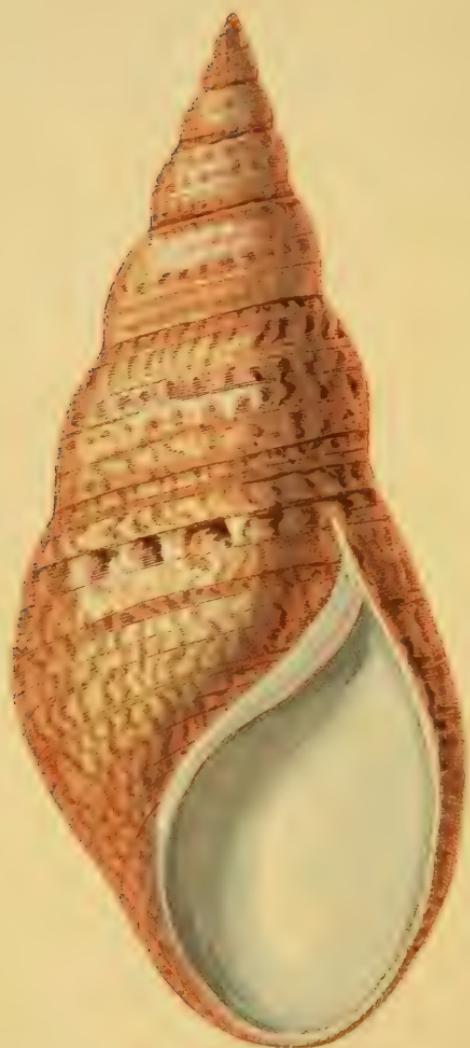
ters, and other sea-shells so strongly prove their marine origin, that he must be of a sceptical mind who could doubt any of the circumstances. The singular species of Lizards and of Crocodiles in a fossil state, and found so abundantly in Bedfordshire, Devonshire, and Gloucestershire, would lead us to suppose that the impulse of the waters, had at the time of the deluge, brought these objects from the Southern and Pacific Ocean, and having retired again to their original beds, had left them to be covered over by the decomposition of vegetable earths. The supposition of some Philosophers who may have conceived that the axis of the earth, has at some former time, received a considerable alteration in the inclination of its line to the plane of its orbit, becomes more and more strengthened and confirmed by all the facts which the history of extraneous fossils presents to our view. The tides joined to the centrifugal force of the equatorial waters distended by the diurnal motion of the earth, may be considered as quite equal, in case of such a change, to the effect which has been produced.

In the most distant regions of Siberia and North America the immensely large bones of the Mammoth and Elephant, which have been found in a fossil state, may tend also strongly to prove some wonderful change of climate, compared with that temperature which is at present experienced by the inhabitants of the earth. If indeed the climates have become so materially altered, it accounts in some degree for the circumstances of the large fossil shells of the *Cornu Ammonis* kind, with its numerous varieties, being found different in form and character to any of the recent ones. The temperature of the ocean would be completely changed and become only adapted for such animals as belonged only to a colder region. The difference of organization in the

CONCHOLOGY.

fossil shell called the Orthoceras, is very obvious; this shell is very rarely found in a recent state, and then only very small, about an inch long; but in the fossil state, of an immense size, two or three feet from end to end. When curved at one end in the manner of the Pastoral Staff or Crosier, it has been called the Litnus. The *Cornu Ammonis* has not unfrequently been found in the Island of Portland, and in Devonshire, six or seven feet in circumference and one foot or more in thickness, embedded in different strata of quarry stone, upwards of sixty feet in depth. Near to these have been numerous fragments of petrified Lizards, Tortoises, and sometimes Crabs, in a most perfect state of preservation. Whatever changes however may have taken place in the sea or land to occasion the above phænomena, it is quite natural to suppose that they happened long before the creation of man, since not the smallest remains have ever been found of human bones petrified, in any country, those which have been found in the rocks at Gibraltar (and once supposed to be human) are found enclosed in silicieous earth, but are known by comparison, to belong to some of the Ape or Monkey Tribes,





Drawn by G. Perry

Engraved by T. L. Busby

BULIMUS PHASIANUS.

Pub'd by J. Stratford, Nov. 1810.

CONCHOLOGY.

Genus---BULIMUS.

Species---BULIMUS PHASIANUS.

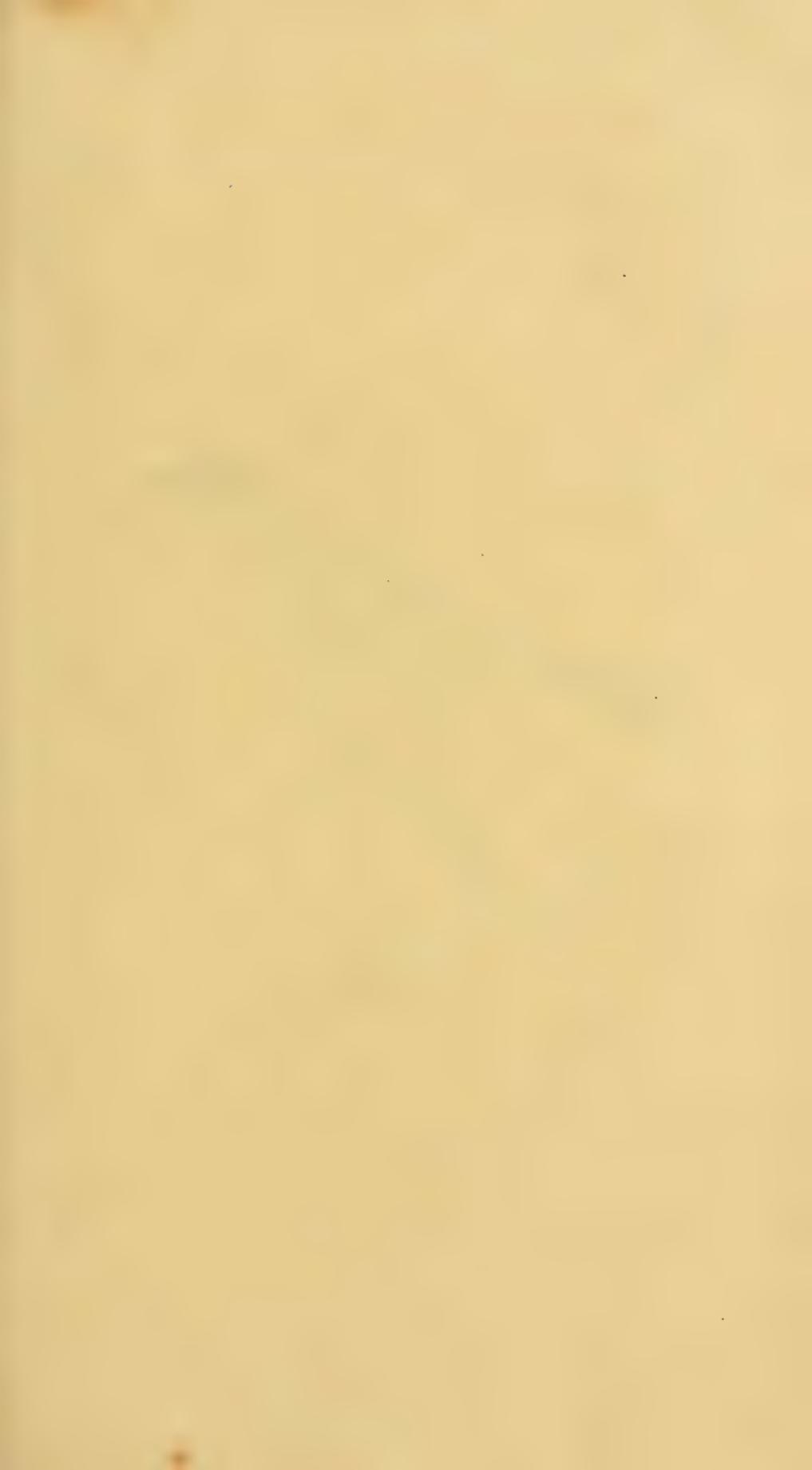
Character—Shell univalve, spiral, the spire and body gibbous; the summit mamillary or rounded, having no beak or rostrum; the cheek joined to the base of the body by an undulated curve, the form of the left side of the mouth arcuated.

THIS elegant shell, so attractive in its form and colour, is a native of New Holland and Van Diemen's Land, and may be worthily classed with the finest productions of the ocean. In a former number of the *ARCANA*, we have presented our readers with a representation of the *Bulimus Zebra*, differing from the present one in having a shorter spire, and a more curvated mouth. The *Bulimus Phasianus* or *Pheasant Shell*, so called from its marks resembling those of a *Pheasant*, is generally about five inches long, of a gently undulated shape and its colour of a rich red tint, verging to a brown, the mouth of a pale blue. The whole of the body, cheek, and spire, are variegated with red streaks and shadows placed above each other, pyramidically, in the most elegant gradation, as if on purpose to catch the eye of the painter, or the admirer of nature. This shell also varies much in the different individuals as to its colour, being sometimes found of a light or dark brown, sometimes olive or very pale, which circumstance perhaps makes them more interesting to the collector, and if well preserved and large, the price they bring is generally very high, from two to three guineas each. The *Genus Bulimus* has been well elucidated by *Brugniere*, an eminent French Conchologist, and what is very remarkable, it had been placed with the

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Genus *Helix* which it resembles, in having no beak at the base of the mouth, but in other respects differs very much. There is also a smaller species of the Pheasant Shell than that which we have described, it is generally only one inch and a half in length, the marking of the pattern is much closer, and the spire ends rather more abruptly. These shells are said to be frequently found in the fresh water rivers as well as in the sea, and sometimes are found adhering to the branches and leaves of trees which hang over the stream; if so, this certainly does in some degree join them to the character of the snail, found in our rivers in England, of which we have one or two species of a singularly pointed form, with a lengthened mouth, and which have not yet been described in any recent work of British Conchology.

Of the *Bulimus* Genus, very few shells have hitherto been found in the European Seas, being generally confined to the more torrid or Southern Regions of the Globe.





CERITHIA COERULEA.

Pub'd by J. Stratford Nov. 1820.

ORNITHOLOGY.

Genus--CERITHIA; OR, CREEPER.

Species--CERITHIA CÆRULEA.

Generic Character.—Body and head tapering in form, the bill arched, long, incurvated downwards, gradually acuminate and angular, sharpened at the end; at the base of the bill a nasal opening; three front toes equal, one hinder toe longer than the other three, head much flattened, tail bifurcate.

THE genus Cerithia, or Creeper, forms a curious and interesting family, which naturally stands contiguous in its characters to the Humming Bird, or Trochilus, so remarkable for the radiance and splendor of their colours and for the smallness of their bodies. The French writers seem to have described the genus Cerithia under the name Colibri, although there is perhaps a difference upon which a generic distinction might be formed, if the characters could be more minutely ascertained. At present, therefore we shall consider the Cerithia and Colibri as the same family, for the sake of convenience of arrangement, these birds not being yet sufficiently identified and understood. The Trochilus, or Humming Bird, differs from the Cerithia in the bill, which is more parallel in its form and sometimes even thickened at the end and more suddenly terminating. There is a peculiarity also in the toes of the Humming Bird, the hinder toe being of the same length as the others. In the rich splendor of their plumage, the Humming Birds are perhaps unrivalled, and in respect to their bright metallic lustre, when examined by certain particular lights, they have been distinguished by the names of the precious

ORNITHOLOGY.

stones, as the sapphire, emerald, topaz and ruby, suitably to the characteristic splendor of their varying and inimitable shades.

The Cerithia Cærulea, which we are now about to describe, is in no respect inferior to its relatives the Trochili, or Humming Birds, consisting of three colours, which predominate in the head, wings and body. The top of the head is exactly of the colour of a beautiful turquoise stone, or to speak more plainly, is of a greenish sky-blue. The back and wings variegated with a blue, black and brown colour, the tail brown, and ending in four circular divisions of equal length. Two curious streaks are inserted upon each side of the tail, the scapulars at the bottom of the back, blue striped with yellow; the tufts of the thighs blue, and the legs yellow. The bird altogether has something of the appearance of second mourning from the grey effect which arises from the blue and black shadows; the whole length is about four inches and a half, and it is a native of the Brazils and Mexico. Its elegantly-turned neck, joined to the symmetry and lightness of its form, serve to mark it as one of the greatest favourites of nature, for the purposes of the painter or designer, and the bill is so nicely ballanced to its size as not to appear too long or preposterous for the rest of the body, which is the case with many of the birds in the warmer climates, and its superiority in this and other respects will no doubt recommend it to our numerous readers.

Delineated from the Liverpool Museum.

*Extracts from Phillips's Account of the Customs
and Arts of the Natives of New Holland.*

FROM the very extraordinary shyness of the inhabitants of New Holland and Botany Bay, but little addition has been made to the short, yet faithful account of their manners attained by the observations of Captain Cooke, and the earliest circumnavigators of this curious and interesting country. The whole indeed that can be known of a people amongst whom civilization and the arts of life have made so small a progress, must amount to very little in the enumeration. They seem not to have discovered the manufacture or uses of large nets, as the New Zealanders have, but some small nets have been obtained from them, the construction of which is very curious. The twine of which they are made, appears to be composed of the fibres of a plant resembling flax, with very little previous preparation, it is very strong, heavy, and so admirably well twisted as to have the appearance of texture of the best whip cord. Some of the sailors had obtained lines of their manufacture, which were made from the fur of some animal, and others that appeared to be of cotton ; the meshes of their nets, very artificially inserted into each other but without any knots. At a small distance they have exactly the appearance of our common nets, but when they are closely examined, the peculiar mode in which the loops are arranged, is found to be different and very remarkable. Some ladies who have inspected one of these nets lately imported, declare that it is exactly on the same principle as the ground of point lace, except that it has only one turn of the thread instead of two, in every loop. These nets appear to have been used either as a landing net, or for the purpose of carrying the fish

when taken. They have also small hoop nets in which they catch Lobsters and other sea cray fish. Their canoes are small and narrow, and sometimes joined together with cross boards; they also use a short paddle or oar, rounded at the lower end and flattened. These savages are tall and thin, their mouths large, of a visage dark and disgusting; they have few ornaments for their persons, except such as are impressed upon the skin itself or laid on in the manner of paint. The men keep their beards short, as it is thought by scorching off the hair, and several of them at the first arrival of our people, appear to take great delight in being shaved. They sometimes hang in their hair the teeth of dogs and other animals, the claws of lobsters, and several small bones, which they fasten there by means of gum; but such ornaments have never been seen upon the women, though they seem not to make any rational attempt at cloathing themselves; they are by no means insensible of the cold, and appear very much to dislike rain. The Governor therefore being convinced by these circumstances, that cleathing would be very acceptable to them, if they could be induced to come sufficiently amongst the English to learn the use of it, ordered a supply of frocks and jackets to be made long and loose to serve either for men or women. The bodies of these people smell very strangely of oil, and the natural darkness of their colour is much increased by dirt. But although in these points they shew so little delicacy, they are not without emotion of disgust when they meet with strong effluvia, to which their organs are unaccustomed. One of them having touched a piece of pork, held out his finger for his companion to smell, with strong marks of distaste. Bread and meat they seldom refuse to take, but generally throw it away soon after. Fish they always accept very eagerly. Whether they use any particular rites of Burial is not yet known, but it seems

Extracts from Phillips's Account of New Holland.

from the following account evident that they have the custom and practice of burning their dead.

The ground had been observed to be raised in several places, like the ruder kind of graves of the common people in England, Governor Phillips ordered some of these barrows to be opened. In one of them a jaw-bone was found not quite consumed, but in general they contained only ashes. From the manner in which these ashes were disposed, it appeared that the body must have been laid at length, raised from the ground a few inches only, or just enough to admit a fire under it, and having been consumed in this posture it must then have been lightly covered over with mold; fern is generally spread upon the surface with a few stones to keep it from being dispersed with the wind. These graves have not been found in very great numbers, nor ever near their huts.

The natives of New South Wales, though in so rude and uncivilized a state as not even to have made an attempt towards clothing themselves, notwithstanding that at times they suffer from the cold and wet, are not without notions of sculpture. In all these excursions of Governor Phillips, and in the neighbourhood of Botany Bay and Port Jackson, the figures of animals, of shields and weapons, and even of men, have been seen carved upon the rocks, roughly indeed, but sufficiently well to ascertain very fully what was the object intended. Fish were often represented, and in one place the form of a large Lizard was sketched out with very tolerable accuracy. On the top of one of these hills the figure of a man in the attitude usually assumed by them when they begin to dance was executed in a still superior style. That the arts of imitation and amusement should thus in any degree precede those of necessity, seems

Extracts from Phillips's Account of New Holland.

an exception to the rules laid down by theory for the progress of invention. But perhaps it may better be considered as a proof that the climate is never so severe as to make the provisions of covering or shelter a matter of absolute necessity. Had these men been exposed to a colder atmosphere, they would doubtless have had cloaths and houses, before they attempted to become sculptors. The country explored in some of the inner parts was so good and fit for cultivation, that the Governor resolved to send a detachment to settle there as soon as convenient. The natives however who know not how to avail themselves of the fertility, are still very numerous in the inland country, and it is wonderful how they subsist. Near to one of their huts, the bones of a Kangaroo were found and several trees were seen half burnt, and it seemed evident that the natives had fled at the approach of the English party, but so effectually did they conceal themselves that not one was seen. The huts seen here consist of single pieces of bark about eleven feet in length and from four to six in breadth, bent in the middle, while fresh from the tree and set up so as to form an acute angle, not a little resembling cards set up by children,

In the few we visited, some spears were found, and it was conjectured that the use of these structures might partly be to conceal themselves from the animals for which they must frequently lie in wait. They may also afford shelter from a shower of rain to one or two who sit or lie under them. The men are distinguished by different marks, some of them want the tooth of the right front jaw; Governor Phillips having remarked this, pointed out to them that he himself had lost one of his front teeth, which occasioned a general clamour. There is sometimes a perforation in the cartilage which divides the nostrils and the

Extracts from Phillips's Account of New Holland.

strange disfiguring ornament of a long bone or stick thrust through it, was now observed as described by Captain Cook, and the same appellation of spritsail yard was applied ludicrously to it by the sailors.

But several very old men were seen who had not lost the tooth, nor had their noses been prepared to receive that grotesque appendage, probably therefore these are marks of distinction; ambition must have its badges, and where cloaths are not worn the body must be compelled to bear them. The women seemed in some instances to have one of their fingers mutilated, by cutting off the first and second joint. They made no attempt to secret themselves, nor seemed impressed with any idea that one part of the body more requires concealment than another, yet there was a shyness and timidity among them which frequently kept them at a distance. They never would approach so readily as the men, and sometimes would not even land from their canoes, but made signs that what was offered them should be given to the men. We are not yet sufficiently acquainted with the manners of the people, to decide whether this reserve proceeds from the fears of the women or from the jealousy of the husbands, by whom they are evidently kept in great subordination.

One of their modes of fishing was now observed; their hooks were made of the inside of a shell resembling mother of pearl. When a fish which has taken the bait is supposed to be too strong to be drawn up with the line, the canoe is paddled to shore and while one man gently draws the fish along, another stands prepared to strike it with the spear, in this attempt they seldom fail. When the southern branch of Broken Bay was first visited, the getting round the headland that separates the branches, was very difficult

Extracts from Phillips's Account of New Holland.

on account of the squalls of wind accompanied with rain. An attempt was made to land where there was not sufficient water for the boat. During this transaction an old man and a youth were standing on a rock where the boat was trying to approach. Having seen how much our men had laboured to get under land, they were very solicitous to point out the deepest water. Afterwards they brought fire, and seemed willing to render any service in their power, two of the officers suffered themselves to be conducted by the old man to a cave at some distance, but declined going in, though he invited them by all the signs he could invent. This was rather unfortunate, as the rain was falling very violently and the cave was found next day large enough to have sheltered the whole party. The old man afterwards assisted in clearing away the shrubs and making preparations for the party to sleep on shore, and next morning he was rewarded with presents for his friendly behaviour, and a hatchet seemed to be one of the most acceptable gifts he could receive. The rain which was almost constant, prevented the Governor from returning by land and of course from making further efforts of conciliation and regard, who seemed however to have no sense of the immorality of thieving until put in mind of it by the notices of some of the crew, upon which the things which had been pilfered were readily given up, without any observations by their or our party.



Drawn by G. Perry

Engraved by T. L. Blue.

HIPPOCAMPUS.

Pub'd by J. Stratford, Dec'r 12, 1810.

ICHTHYLOGY.

Genus--SYNGNATHUS; or, HIPPOCAMPUS.

Species--ERECTUS.

Character—Animal having a head formed like a Horse, body jointed like armour, the fins placed on a pedicle, irregular in their number and position, no caudal or terminating-fin to the tail.

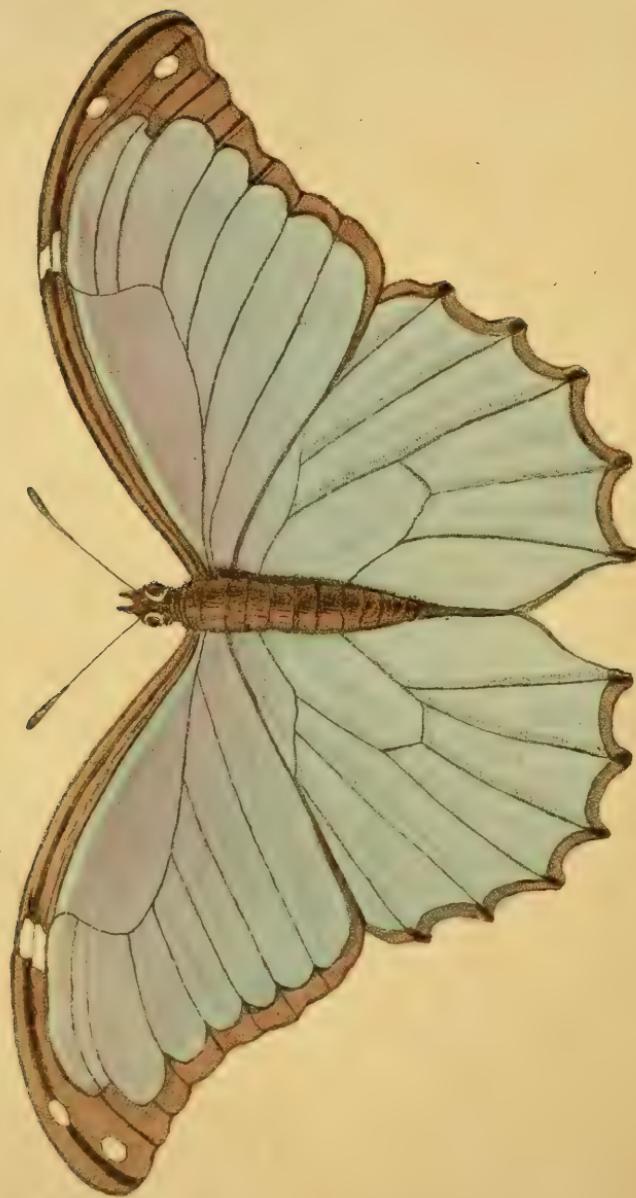
IN a former number of the *ARCANA* (for May) we imparted to our readers a new species of this curious genus of sea animals, and which was of a larger size, and much longer form than the present *Hippocampus*, although not quite so round or broad in the body. The form of the fins also were found to be materially different, and much more numerous. The rarity however of the former animal is greater than in the present instance, yet the whimsical fancy, if we may so call it, is equally displayed in the pattern of each, and it is not, perhaps, impossible that painters and sculptors may first have borrowed the idea of a mermaid, from the specimen now before us, and excepting the head and the want of arms and hands, it strongly reminds us of that object.

The *Hippocampus Erectus* is a native of the American Seas, and of the coasts adjacent to Mexico and the West Indies; its size varies from seven inches to nine, in various specimens, and which, perhaps, is distinctive of the different sexes, the male being the smallest. The head has very much the resemblance to that of a Horse, in the way represented by the ancient sculptors of Greece and Rome, the same similitude is kept up wonderfully in the proportion and form of the neck; the organs for hearing being placed

ICHTHYOLGY.

at the back part of the neck; and forms externally, an angular opening. The colour of the body is of a pale amber, shaded with brown, and which is divided into ribs transversely placed, and continued in a closer manner upon the neck and tail; the mouth is truncated and without teeth, and has two small horns standing upon the forehead immediately above the eyes. Higher up and projecting from the crown of the head are two pointed tubercles, and one below, fixed upon the under jaw; the back is invested with a spreading fin, which is filamentous and pointed downwards. In the front part of the abdomen, are placed two small circular fins curvated, and these are all which the animal seems to possess.

In the infinite varieties which occur in the different kingdoms of animals, fishes, birds and insects, we have had frequently our attention drawn to those intergenera, or connecting links, which unite by analogy, two different tribes of beings. Thus the Bat exhibits a gradation, being placed between the bird and the quadruped; the flying fish, endowed with a power of moving through the air, joins the characters of the fish and bird, and the present specimen seems to unite the qualities of fish and insect, its covering being divided into partitional segments, yet without any fin to its tail; it still has a sufficient analogy, in its situation and habits to be reckoned by a superficial observer, a fish, but a difference in its form from all fish, is observable throughout the whole of this most curious animal.



Drawn by G. Perry.

Engraved by T. H. Morgan.

ARCUATUS CERULEUS.

ENTOMOLOGY.

Genus---PAPILIO. Division---ARCUATUS.

IT was formerly the method adopted by some eminent naturalists, to class the Butterfly-tribes by placing them under five principal divisions, or families, and these again into sub-divisions, according to the spots, the transparency of the wings, or the colour or form of the upper wings. This was the custom of LINNÆUS and FABRICIUS, and is found now to be entirely wanting in decision and preciseness of terms, for in many instances, the spots vary in number and colour, even in the same individual, from difference of sex, or of food and situation.

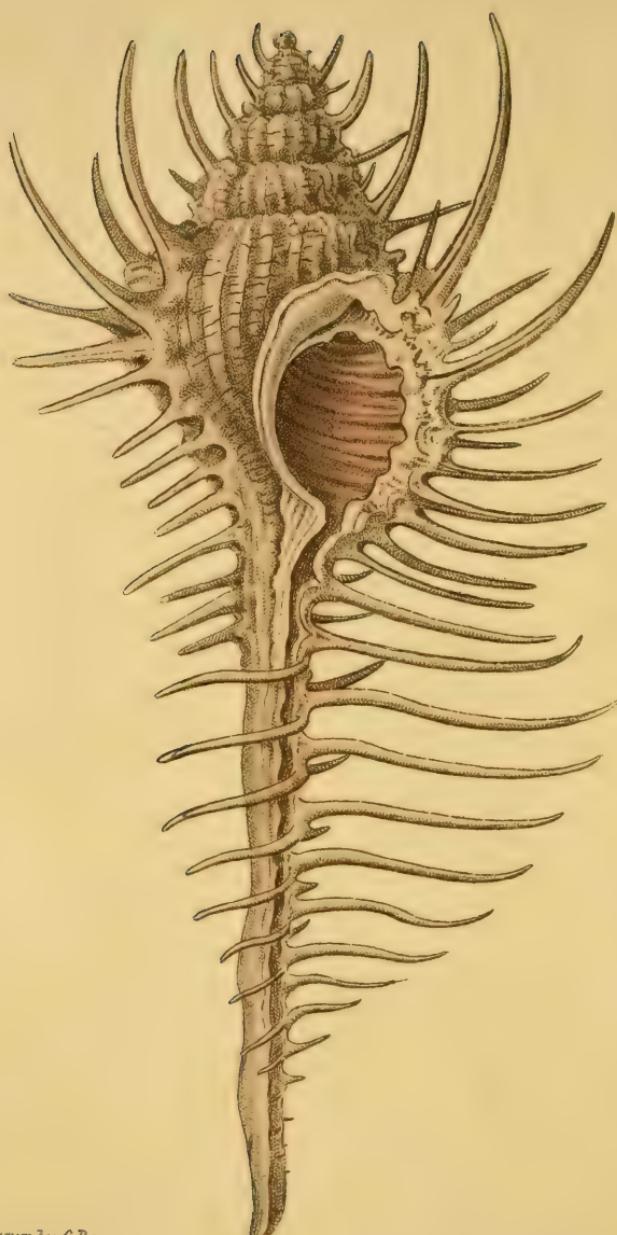
The terms of *Rurales*, *Danai*, *Equites*, *Nymphæ*, &c. are so confused and contradictory to each other, so little explanatory of their nature and qualities, and drawn from such opposite and unmeaning circumstances, added to the pompous and ridiculous names of the Greeks and Trojans, that every judicious Papilionist naturally wishes for a new arrangement in that difficult, yet interesting tribe of insects. To enter into the full disquisition of the errors and obvious contradictions of such a mode of classification, would be inconsistent with the conciseness of our present plan in this work, as we wish rather to draw the attention of our readers to the general observations of nature, than to abstruse distinctions of difficult terms. We would therefore suggest, in preference to the above, a method adopted by an ingenious naturalist of the present time, who proposes to include all the Papilio-tribes which are found in nature, under certain definitional characters, taken entirely from the forms of the wings, which will impart to us in every word, some particular character of its shape and proportion. This,

ENTOMOLOGY

undoubtedly, will be found more useful and clearly understood than to take the definitions from the spots, colour, or transparency of the wings, for these are vague and uncertain and perpetually varying, whereas the external outline (which is a grand distinction) is always found to be constant and persisting.

According to this new division, the present Butterfly comes under the character called *Arctuatus*, or bow-shaped, having in the lower part of the outline an undulated shape, by the junction of the upper and lower wings, which makes it resemble a bow. The *Orbati* have their wings very much extended, and all of them rounded, as described in the last number. The *Caudati* have a long tail, projecting from each lower wing, and these form a very large family of foreign *Papilios*, although but very few of them are found in England. The *Excelsi* have their upper wings spread out, rounded, and very much lifted up. The *Cupidati* have the outermost corners of the upper wings cut off in an angular form. The *Muscarii* have wings resembling the common fly, and which are also transparent.

It appears likely, from the convenience and perspicuity of the above arrangement, that it may very probably supersede the necessity of all the former ones, and illustrate clearly, by the most exact definitions, this most beautiful and interesting branch of the animated creation.



Drawn by G. Perry

Engrav'd by T.L. Busby.

ARANEA GRACILIS.

Pub'd by J. Stratford Dec. 1820.

CONCHOLOGY.

Genus--ARANEA. Species--ARANEA GRACILIS.

Character.—Shell univalve, spiral, the spire and body short and rounded, the beak long and armed with a triple row of spines, the mouth undulated and labiated. The body, spire, and beak invested with a triple accumulation of curved and pointed integuments, open at the base.

THE curious and graceful shell of which we are now about to present the resemblance to our readers, was classed by that great naturalist LINNÆUS, along with the Murices, by the name of *Murex Tribulus Minor*; upon a further investigation, however, of its form, it seems more properly to form a genus of itself, of which, about twenty different species are at present known, some of which are three times as large as the present. By some of our later writers upon Conchology, it has been called by the name of *Venus's Comb*, or the small *Thorney Woodcock*, from its supposed resemblance to a *Woodcock's* head and bill.

Of those shells which are denominated the branched species, the *Triplex* and the *Aranea* are the most remarkable, the distinction which exists between them, has been remarked in a former number, where several of the *Triplexes* have been already described. The length of the shell of the *Aranea Gracilis* is generally from five to six inches, and exhibits a striking and pleasing object, as to the elegance, lightness, and intricacy of its parts. The number of its curved spines or thorns, amounts in the whole to ninety-five, all of different lengths, and placed each of them at various distances, in the most curious and agreeable

CONCHOLOGY.

variety. The beak is elongated and tapering, and at the bottom slightly bent on one side, the spire short and ending in a round tubercle at the top. The colour of the whole shell is generally of a pale amber tint, inclining to a red, the mouth sometimes white, red, or brown, richly streaked with circular lines. The most elegant specimen of this shell which we have hitherto seen, is that which was in the late Mr. CRACHERODE's collection, and now deposited in the British Museum, the comparative value being appreciated by the number, length and preservation of the spines. The shells which we have hitherto delineated, have, many of them, been remarkable for a boldness of outline and richness of colouring, from which however, the *Aranea* differs most materially, recommending itself chiefly by a graceful lightness of form, with a great intricacy and diversity, which our sublime author the late Mr. BURKE, as well as our illustrious HOGARTH, have described, as being principally necessary to the impressions of beauty. Such is the astonishing variety of character in each part of individual nature, from which, undoubtedly, all the principles of artificial taste and beauty were traced and designated by the ingénious and active powers of man.

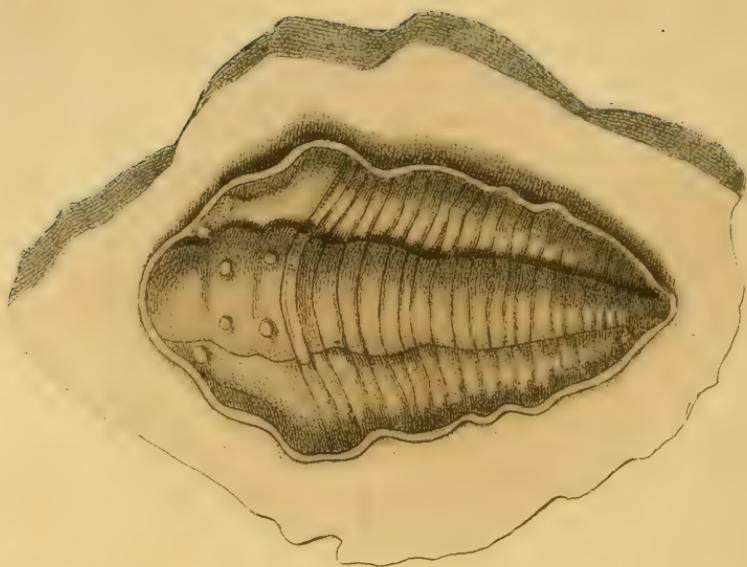
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MONOCERATOPSIDOS.

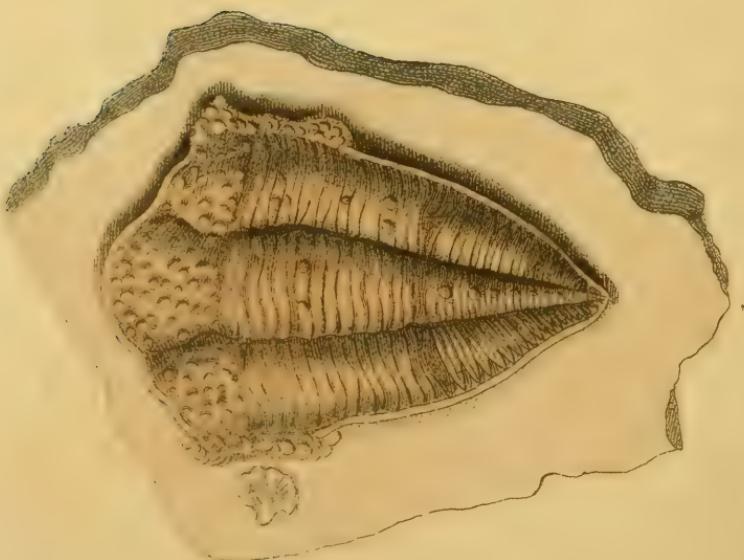
Drawn by J. S. Sowerby, F. R. S.

Drawn by G. Petty.

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CONCHOLOGY.

FOSSILIA. *Family*--NANTES, OR SWIMMERS.

Genus--MONOCULITHOS.

Species Two--1. POLYMORPHUS. 2. HEXAMORPHUS.

THE curious circumstances of the Dudley fossils, have already engaged a considerable portion of our attention in the preceding number, and at the same time we endeavoured, as far as our brief limits would allow, a short but general account of some peculiarities in the fossil kingdom, and we shall now resume, being a subject hitherto not sufficiently discussed, so far as relates to the animal-remains of our own kingdom. It perhaps has not escaped the observation of the reader, that a great number of the polished marbles used in the decorations of art, contain a numberless infinitude of fossil shells, and of animal and vegetable exuviae. The marble quarries of Kilkenny, in Ireland, contain an amazing number of petrified shells inclosed in a black ground, and which, when cut across, resemble the circular slices of onions, that these are not of the Cardium, or Cockle-kind, is obvious, and specimens of the *Cornu Ammonis*, *Argonauta*, and of many different patterns of the *Monoculithos*, as well as the *Tubaporite* and *Madrepore*, are frequently inserted, all attesting their marine origin. In Derbyshire, Scotland, and Wales, even upon the most inland vallies and mountains, the same objects are exhibited in strata of limestone, chalk, or clay, attesting strongly the universality of the flood.

If any circumstance were wanting to prove to our senses their marine origin, nothing can be stronger than one of the present instances of *Monoculithos Polymorphus*, No. 1, where a small fossil-shell of the *Mya* genus is found

CONCHOLOGY.

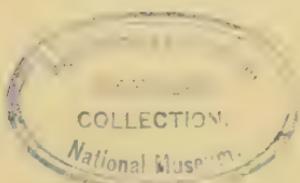
attached to the side of the stone, containing the fossil. This specimen is remarkable also for the numerous tubercles which invest the upper part, or head, and two appendages, or arms, which hang down on the outside, also tuberculated; similar traces, or arms, are also visible in the large one, published in a former number. The tail of No. 1 is curiously fimbriated and adorned with tubercles and regularly diminishing.

No. 2, is the *Monoculithos Hexamorphus*, and has only six tubercles upon the head, the rest of the body, and what is generally called the tail, is much less ornamental in all its parts than the former. These specimens are generally of a flat shape and character, and the under side seldom distinguishable from the upper, and therefore not to be seen completely all round. There is, however, a striking likeness in the general analogy of the parts, which may perhaps lead to a further investigation of their anatomical structure. It may also perhaps be necessary in this part of our subject to add the conjecture of an ingenious modern naturalist, who supposes them to be the larvæ, or chrysalis of some large Moth, or Insect, in a withered or contracted state.

*Extracts from the Travels of Mr. Mungo Parke
in the Interior of Africa, containing an Account
of the River Niger.*

ARRIVING at Wassiboo, one of the principal towns in the neighbourhood of the kingdom of Bambarra, I met with eight fugitive Kaartans, who offered to accompany me to Satile, and I acquiesced in their proposals; at day-break we set out, and travelled with uncommon expedition until sun-set; we stopped only twice in the course of the day, once at a watering place in the woods, and another time at the ruins of a town formerly called Illa-Campe (the Corn Town.) When we afterwards arrived in the neighbourhood of Satile, the people who were employed in the corn fields seeing so many horsemen took us for a party of Moors, and ran screaming away. The whole town was alarmed, and the slaves were seen in every direction driving the cattle and horses towards the town. It was in vain that one of our company galloped up to undeceive them, it only frightened them the more, and when we arrived at the town we found the gates shut and the people all under arms. After a long parley we were permitted to enter, and as there was every appearance of a heavy tornado, the black governor allowed us to sleep in his grounds, and gave us each a bullock's hide for our bed. Early in the morning we again set forward, the roads were wet and slippery, but the country was every where beautiful, abounding with rivulets, which were increased by the rain into rapid streams, we shortly afterwards arrived at Moorja, a large town famous for its trade in salt, which the Moors bring here in great quantities, to exchange for corn and

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Extracts from the Travels of Mr. Mungo Parke.

cotton cloths. As most of the black people here are Mahomedans, it is not allowed to the Caffirs to drink beer, which they call neo-dollo (corn spirit) except in certain houses. In one of these I saw about twenty people sitting round large vessels of this beer with the greatest conviviality, many of them in a state of intoxication. As corn is plentiful, the inhabitants are very hospitable and liberal to strangers, and I believe we had as much corn and milk sent us as would have been sufficient for three times our number, and though we remained there two days, we experienced no diminution of kindness and regard.

We reached the next village, called Datliboo, and passed a caravan of travellers with corn paddles, mats, and other household utensils, returning from the town of Sego. We continued our journey, but having had a light supper the preceding night, we felt ourselves rather hungry and endeavoured to procure some corn at this village, but without success. The towns were now more numerous, and the land that is not employed in cultivation, affords excellent pasturage for large herds of cattle, but owing to the great concourse of people daily going to and returning from Sego, the inhabitants are less hospitable to strangers. My horse, in this part of my journey, being very much fatigued, I was walking barefoot and driving my horse, when I was met by a caravan of slaves, about seventy in number, coming from Sego. They were tied together by the necks with thongs of a bullock's hide twisted like a rope, seven slaves upon a thong, and a man with a musket between every seven. Many of the slaves were ill conditioned and a great number of them women; they were to proceed by the Ludamar and the great desert to Morocco. At eight o'clock we departed from Doolinkaboo, and stopped at a large village; hearing that two negroes were going from thence to Sego, I was happy to have their company,

Extracts from the Travels of Mr. Mungo Parke.

and we set out immediately. About four o'clock we stopped at a small village, where one of the negroes met with an acquaintance, who invited us to a sort of public entertainment, which was conducted with uncommon propriety. A dish made of sour milk and meal called sinkatoo, and beer made from their corn was distributed with great liberality, and the women were admitted into the society. There was no compulsion, each was allowed to drink as he pleased, they nodded to each other when about to drink, and on setting down the calabash commonly said berka (thank you.) Both men and women appeared to be somewhat intoxicated, but they were far from being quarrelsome. We now began to approach the city of Sego, the residence of the King and the capital of Bambarra, to whom the Kaartans, my companions, promised to introduce me.

Afterwards we rode through a marshy valley, and as I was looking out anxiously for the river, one of them called out "geo-silli," (see the water) and looking forwards, I saw with infinite pleasure the great object of my mission, the long sought-for majestic Niger glittering to the morning sun, as broad as the Thames at Westminster, and flowing slowly to the eastward. I hastened to the brink, and having drank of the water, lifted up my fervent thanks in prayer to the Great Ruler of all things, for having thus far crowned my endeavours with success. The circumstance of the Niger flowing towards the east and its collateral points, did not however excite my surprize, though I had left Europe in great hesitation on this subject, and rather believed that it ran in a contrary direction. I had made such frequent enquiries during my progress concerning it from negroes of different nations, such clear and decisive assurances, that its general course was towards the rising sun, as scarce left any doubt on my mind, especially as Major HOUGHTON had received similar information.

Extracts from the Travels of Mr. Mungo Parke.

Sego, the capital of Bambarra, consists properly of four distinct towns, two on the north bank of the Niger, and named Sego-korro and Sego-boo, two on the south called Sego-soo-korro and Sego-see-korro. They are all surrounded with high mud walls, the houses are built of clay, of a square form, with flat roofs, some of them have two stories, and many of them are whitewashed. Besides these buildings, Moorish mosques are seen in every quarter, and the streets, though narrow, are broad enough for every useful purpose where wheel carriages are entirely unknown. From the best enquiries I could make, I have reason to believe that Sego contains altogether about thirty thousand inhabitants. The King of Bambarra resides at Sego-see-korro, he employs a great many slaves in conveying people over the river, and the money they receive (though the fare is only ten cowries for each person) furnishes a very large revenue in the course of the year. The canoes are of a singular construction, each of them being formed of the trunks of two large trees, rendered concave and joined together, not side by side but end to end, the junction being exactly across the middle of the canoe, they are therefore very long and disproportionately narrow, and have neither decks nor masts, they are however very roomy, for I observed in one of them four horses and several people crossing over the river. When we arrived at this ferry, we found a great number waiting for a passage, they looked at me with silent wonder, and I distinguished with concern many Moors among them.

There were three different places of embarkation, and the ferry-men were very diligent and expeditious; but from the crowd of people that had assembled, I could not immediately obtain a passage, and sat down upon the bank of the river, to await a more favourable opportunity. The view of this extensive city, the numerous

Extracts from the Travels of Mr. Mungo Parke.

canoes upon the river, the crowded population, and the cultivated state of the surrounding country, formed altogether a prospect of civilization and magnificence, which I little expected to find in the bosom of Africa. I waited more than two hours without having an opportunity of crossing the river, during which time, the people who had crossed carried information to Mansong the King, that a white man was waiting for a passage and was coming to see him. He immediately sent over one of his chief men, who informed me, that the King could not possibly see me, until he knew what had brought me in his country, and that I must not presume to cross the river without the King's permission. He therefore advised me to lodge at a distant village, to which he pointed, for the night, and said that in the morning he would give me further directions how to conduct myself. This was very discouraging, however as there was no remedy, I set off for the village, where I found to my great mortification, that no person would admit me into his house. I was regarded with astonishment and fear, and was obliged to sit all day without victuals, in the shade of a tree; the night threatened to be very uncomfortable, for the wind arose and there was great appearance of a heavy rain, and the wild beasts are so very numerous in the neighbourhood, that I should have been under the necessity of climbing up the tree and resting amongst the branches; about sun-set however as I was preparing to pass the night in this manner, and had turned my horse loose that he might graze at liberty, a woman returning from the labours of the field, stopped to observe me, and perceiving that I was weary and dejected, inquired into my situation, which I briefly explained to her, whereupon, with looks of great compassion, she took up my saddle and bridle and told me to follow her; having conducted me to her hut, she lighted up a lamp, spread a mat for me on the floor, and told me I might remain there for the night;

Extracts from the Travels of Mr. Mungo Park.

finding I was very hungry, she said she would procure me something to eat; she accordingly went out and returned in a short time with a very fine fish, which having caused to be half broiled upon some embers, she gave me for my supper. In the afternoon another messenger arrived with a bag in his hands, he told me it was the King's pleasure, that I should depart forthwith from the neighbourhood of Sego, but that wishing to relieve a white man in distress, had sent me five thousand cowries, to enable me to purchase provisions in the course of my journey. Being thus compelled to leave Sego, I was conducted the same evening to a small village about seven miles to the eastward, with some of which my guide was acquainted, by whom we were well received. He was very friendly and communicative, and informed me that the cities of Tombuctoo and Jenne were under the dominion of the Moors. About eight o'clock we passed a large town called Kabba, situated in the midst of a beautiful and highly cultivated country, bearing a considerable resemblance to England. The people were employed in collecting the fruit of the shea trees, from which they prepare a vegetable butter, and which grow in all parts of Bambarra in great abundance; they are not planted by the natives, but grow wild and in clearing wood land for cultivation, every tree is cut down except the shea. The tree itself much resembles an American oak, and the fruit from the kernel of which being dried in the sun, the butter is prepared by boiling the kernel in water, has something of the appearance of a Spanish olive; the kernel is enveloped in a pulp and under a green rind, the butter produced from it, besides the advantage of its keeping a whole year without salt, is whiter, firmer, and to my palate, of a richer flavour than the best butter I ever tasted made from cows' milk; the growth and preparation of this commodity seem to be among the first articles of African industry in this and the neighbouring states, and it constitutes

Extracts from the Travels of Mr. Mungo Park.

a main article of their inland commerce. We passed, in the course of the day, a great many villages, chiefly inhabited by fishermen, and in the evening arrived at Sansanding, a large town containing as I was told, from eight to ten thousand inhabitants; this place is much resorted to by the Moors, who bring salt from Beroo and other Moorish countries, where on account of the want of rain, no cotton is cultivated; we rode near the town and river, passing by a creek or harbour, where I observed twenty large canoes, most of them fully loaded and covered with mats to keep out the rain, and in short several others arrived with passengers. The ensuing night I slept at Sibili, from whence, the next day I arrived at Nyara a large town at some distance from the river, and the governor very civilly sent his son to shew me the road to Modiboo, which he assured me was at no great distance; we rode in a direct line thro' the woods, but in general went forward with great circumspection, my guide frequently stopping and looking under the bushes; on my enquiring the reason of this caution, he told me that lions were very numerous in that part of the country, and frequently attacked persons travelling in the woods; while he was speaking my horse started, and looking, I observed a large animal of the Cameleopard kind standing at a little distance, the neck and fore legs were very long, the head was furnished with two short black horns turning backwards, the tail, which reached down to the ham joint, had a tuft of hair at the end; the animal was of a mouse colour, and it trotted away from us in a very sluggish manner, moving its head from side to side to see if we were pursuing it.

Shortly after this, as we were crossing a large open plain, where there were a few scattered bushes, my guide, who was a little before me, wheeled his horse round in a moment, calling out something in the Foulah language,

Extracts from the Travels of Mr. Mungo Parke.

which I did not understand, I enquired in Mandingo what he meant, “ wara, billi, billi,” (a very large lion) said he, and made signs for me to ride away; my horse was too fatigued, so we rode slowly past the bush from which the animal had given us the alarm, not seeing any thing myself however, I thought my guide had been mistaken, when the Foulah suddenly putting his hand to his mouth, exclaimed “ soubah an Allahi,” (God preserve us) and to my great surprise, I then perceived a large lion at a short distance from the bush with his head couched between his fore paws, I expected he would instantly spring upon me, and instinctively pulled my feet from the stirrups, that my horse might become the victim rather than myself; but it is probable the lion was not hungry, since he quietly suffered us to pass, though we were fairly within his reach; my eyes were so rivetted upon this sovereign of the beasts, that I found it impossible to remove them until we were at a considerable distance.



CAMELEOPARD.

Pub'd by J. Stratford, Jan. 1. 1821.

ZOOLOGY.

Genus-CAMELUS.

Species--CAMELOPARDALIS; OR, TORTOISE-COLOURED ANTELOPE.

Character.—Horns short and small, united by the skull; the neck and legs very long; the body short and spotted closely with various markings, octagonal, oval, or square; the ears placed upon the neck; tail short, ending in a hairy extremity; the feet cloven and obtusely pointed; the chest high and projecting; found only in the **Torrid Zone**.

THE Camelopard is an animal which is for the singularity of its form, and immense size, justly attractive of the admiration of mankind, and presents to all those who are deeply interested in Natural History, a strong and wonderful instance of the great variety, which the author of nature has spread through all his works. The head has a striking resemblance to that of a Horse, but differs from it essentially in having a high boney process, shaped like the keel of a ship, and placed in the centre of the forehead between the eyes; the horns are small and rounded at the points and covered with short hairs at the ends. The legs are beautifully taper, as well as the neck, and whether we consider the variety of spots; their mathematical shapes, or the stately contour visible in its general character, we may certainly consider it as one of the most majestic animals of the creation. The Horse indeed presents to the eye of the spectator a different set of proportions, to which our judgment has become more familiarized, and is of course more connected with the ideas of utility and intellect than the former, or any other animal at present discovered,

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The singularity of the Kanguroo and its numerous species, arises from the extreme shortness of the fore legs and length of the hinder ones. In the present animal, this system is reversed, the fore legs appearing by much the longest. The Camelopard is a perfectly harmless animal, and subsists in the middle and southern parts of Africa, by grazing, and also by feeding on the young branches of the trees, for which his long neck is admirably calculated. He is supposed to be quite incapable of domiciliation and his great size would render him probably a most inconvenient animal even if tamed. The present delineation was taken from a fine and noble specimen preserved in Mr. BULLOCK's Museum, and which was shot by an English Gentleman near the Cape of Good Hope. It is found to be the largest specimen ever brought to England, being seventeen feet in height; but no description whatever can impart the idea of vastness, which the sight of the animal itself must always inspire in the spectator. He traverses his native plains, when alive, in herds of twenty or thirty together, and when grazing is said to bring his head very low between his fore legs in a striding posture. When pursued by dogs or men, of both of which he is much afraid, he commences a brisk ambling trot, and which is afterwards increased in velocity, leaving his pursuers far behind. The Camelopard however, though now very scarce, was well known to the ancient Romans, having been frequently exhibited by them in their Circus and publick games, for the gratification of the populace, who delighted much in these kind of exhibitions.

Many various observations have been made by different naturalists, respecting the comparative anatomy of the Camelopard, and it has been observed by VAILLANT, that the same protuberance occurs in this animal, which

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is found upon the back of the Camel and Dromedary. Even in the Lama and Vicuna, which are found in South America, described in a former number of the **ARCANA**, the same elevated rising is observed. In all these animals the hump or sudden rising of the back, differ considerably; in the Camel it is very large, and placed in the centre; in the Dromedary divided into two prominences, as if for the purpose of placing the load with safety, and in the Lama and Vicuna it is much less obvious. In the Camelopard the same circumstance exists, only placed closely to the upper part of the shoulders. This protuberance is to be considered as a fleshy florescence or tumour, and not connected with any enlargement of the bone in that part.

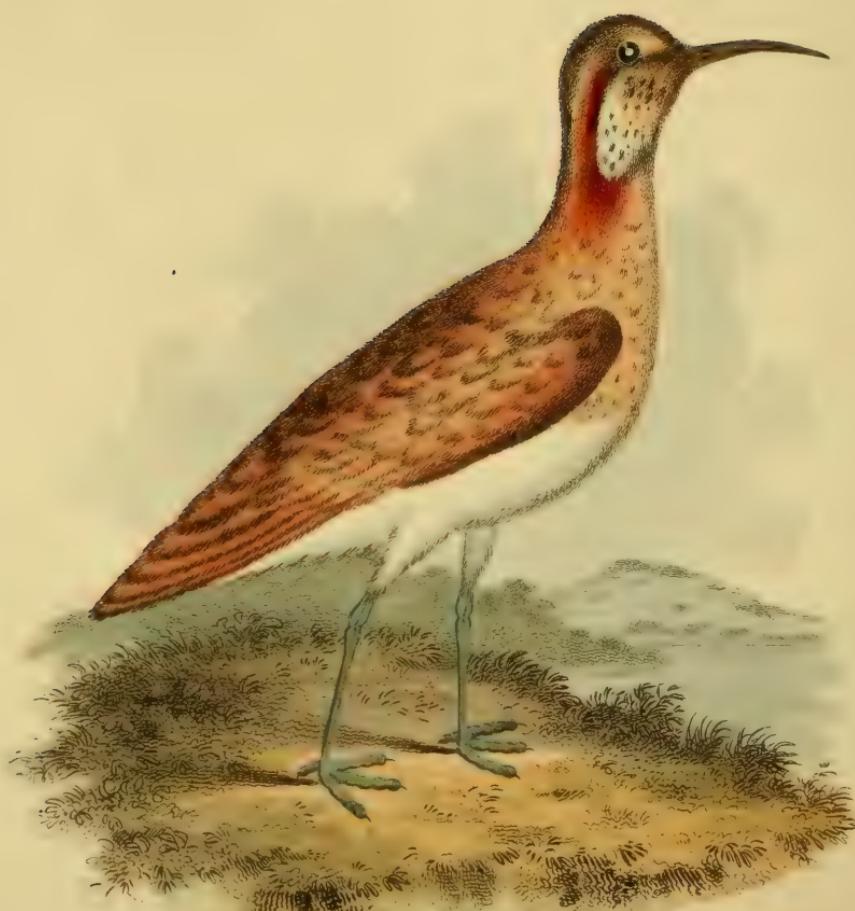
The second singular point in the formation of the Camelopard, is the circumstance of the horns which grow upon the top of the head, proceeding from a raised bony process, which is elevated and higher than the rest of the skull. It appears also very plain that the beast has not the power of casting them, like the Stag, the Elk and other ruminating animals, but that they are to be considered as a part of the skull itself, and dating their existence from the very birth of the creature.

The account of **PATTERSON**, who in his Botanical Tour in the neighbourhood of the Cape of Good Hope, shot one of these curious animals, agrees with the general account as to their mildness and timidity. The individual which he killed and which is now in the **MUSEUM** of the late **DOCTOR HUNTER**, in Lincoln's Inn Fields, was about fifteen feet only in height, and may therefore be properly supposed to have been a young one, or a female.

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The next singularity which we shall notice in this astonishing quadruped is the great number of spots which amount in the whole to about four hundred. These are of different sizes and mathematical forms such as the square, octagon, circle, oval, pentagon and hexagon almost as if they had been drawn by a mathematician with his compasses and square.

The public will no doubt consider themselves as much indebted to the liberal generosity of **Mr. BULLOCK**, in procuring the view of this gigantic animal which is certainly the tallest in the known world. At a considerable expence and exertion, he has obtained it from abroad and finally preserved it here: it will long remain, an example of a variety in the quadruped divisions, though once supposed by sceptical minds to have been wholly invented by fabulous travellers.



C. Hirst del.

T. L. Busby sculp.

Red Phalarope.

Pub^d by J. Stratford. Jan. 1816.

ORNITHOLOGY.

Phalaropus hyperboreus Gmelin. 17

Order--GRALLÆ; or, WADERS.

Genus--TRINGA; or, PHALAROPA.

Species--TRINGA RUBRA. Variety.

Generic Character.—Bill slender and incurvated, either upwards or downwards, legs rather lengthened, the toes divided and partly webbed or scalloped, the eyes placed very much backwards and upwards in the head, the mandibles pointed and of equal length.

THE Grallæ genus are one of the six natural divisions of birds, laid down by LINNÆUS, and meant by him to include the Herons, Curlews, Plovers, and other water birds, having in general three long toes in front, and one short one recurved behind, some exceptions however occur in certain instances, as their feet being webbed or scalloped, as in the bird now before us; for in some instances, the water-birds of this division seem to be half webbed. It seems therefore that in this part of natural history, a nicer distinction should be drawn between these families of birds, called Grallæ, and which might easily be done from the particular form of the feet.

We have received from MR. PRIESTNALL, of Stockport, a drawing of the Red Phalarope, which is conceived to be a very rare and singular variety of that curious bird, and which is described by him in the following manner. “ The Red Phalarope was shot near Stockport, in the winter of 1806; it weighed two ounces only: the bill was black, slender, and bent a little towards the tip, a dusky stripe passed below the eye to the back of the head, where

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it is joined to a reddish stripe which falls down to the neck, the chin and throat white, with small brown spots, the hinder part of the head, neck, and back of a ferruginous colour, and the wings reaching to the end of the tail. The breast is very white and faintly spotted with brown, the legs of a beautiful blue colour, the toes scalloped and serrated, the nails black." In the entertaining and useful work of Mr. BEWICK, upon the Land and Water Birds in England, we suppose that he alludes to this bird in the following words. " *Tringa Hyperborea*, or Red Phalarope: the bill is slender and straight, about an inch long and bent a little downwards at the tip, this species is very rare in England."

[*Note of the Editor.*] Mr. BEWICK's remarks respecting the scarcity of this bird, may be applied to a great many others which are found in England, we shall therefore feel ourselves highly indebted to those correspondents, who are possessed of a lucky opportunity of adding to this desirable knowledge of the varieties of nature, as there is still an ample field for discoveries of the different tribes of insects, birds, fish, fossil remains of animals, &c. which will alone impart a pleasing novelty to a work professing to exhibit the secrets of nature; and it is almost unnecessary to say that all such communications will be most thankfully received. If accompanied by accurate coloured drawings, faithfully representing the various objects of description, our pleasure and advantage will be considerably increased, and a rich harvest of knowledge and investigation will amply repay our time, labour, and exertions.



Engraved by T.L. Dury

Drawn by G. Perry.

PHALANINA

Pub'd by J. Stratford, Jan 1880.

ENTOMOLOGY.

Distinctive Genus---PHALCENA.

Division---ARCUATA VITREA; or, ATLAS MOTH.

THE fanciful powers of the mind of the great LINNÆUS, have no where been more plainly exemplified than in his various descriptions of the insect tribes. The name of Atlas has been therefore given by him to the moth which is here represented, and who was reported by the ancient mythological writers, to be so strong as to be able to carry the whole world upon his shoulders, in which attitude he is generally represented by the ancient sculptors. Atlas is said also to have been a great astronomer and to have examined the courses of the planets and stars, from that celebrated mountain in Africa which still bears his name. The present moth being of a larger size and strength than most others of his tribe, might perhaps be his reason for that distinctive name.

The Phalæna of our present number, is a native of South America, and like most of that tribe of insects, is of a predominant brown colour, in opposition the Papilios, which consist in general of wings more variegated in their tints. Its form is arcuated, or shaped like a bow, and presents a most graceful and elegant outline on every side. On the middle of each upper and lower wing, is placed a very remarkable spot angular, of a whitish brown colour, and of a transparent appearance similar to glass or tare. We prefer therefore the name of vitrea, or glassy, for the specific description, as intimating more plainly those peculiar marks.

ENTOMOLOGY

The wings of all the *Papilios* and *Phalænas* already discovered are composed of a membranaceous or transparent skin, extended between the tendons, or sinews; these are generally covered with small feathers of different shapes and colours, which present, when rubbed off, to the powers of the microscope, a most curious object, being placed over each other like the tiles of a house. When these are only inserted on certain parts of the wing, the rest appear transparent, similar to those of the common fly. The present moth is from a fine specimen in Mr. BULLOCK's collection, and is a male insect, the female is possessed of wings one inch larger in length and breadth; although this observation of the superior size is not always a certain criterion, as in some few species nature varies from that rule. The under wings are ornamented by a beautiful chain-border, the upper wings consist of red and black streaks at each extremity, the space chiefly occupied with undulated dashes of black and brown, the antennæ are short and plain, and the whole presents to the view the true character of the *Simplex Munditiis* of Horace, which, if it could possibly be translated, might be denominated, elegance joined with neatness.



Drawn by G. Perry.

Engraved by T. I. Busby.

STROMBUS SOLITARIS.

Pub'd by J. Stratford Jan. 1818.

CONCHOLOGY.

Genus---STROMBUS.

Species---STROMBUS SOLITARIS.

Character.—Shell univalve, spiral, the cheek or Maxilla Oris turned backwards, and spread out like a flap, the cheek also cut open and farrowed at the top and bottom, near to where it joins the beak; the beak twisted inwards and backwards.

AMONGST the various specimens of Shells presented to our view in the marine kingdom, there are few which possess a greater variety than the Genus Strombus. The body is generally large, the spire and beak small, but the most striking and characteristic mark is in the cheek of the shell, which is very much expanded in the side, and differs in that respect from all other Genera. A change takes place during the growth of this shell to its full size, which is extremely curious, and which is caused by the operation of the animal which resides in it. As soon as it finds its own body grow too large for the habitation which it occupies, it uses a flexible instrument of the form of a trowel, and with which nature has wisely provided it, and spreads a natural viscous incrustation or plaster round the edge of the mouth, gradually enlarging and adding to it, as it progressively hardens; during this period it also provides a safe covering for the instrument itself, which is the spire or long horn that is represented at the top of the shell in the annexed engraving. Most of the other Strombi however have five or six imitations of this principal spire, and are generally placed upon the side of the cheek, at regular distances. The inside of the Strombus Solitaris (so named from the circumstance of its having only one

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horn or spine) is of a bright red colour, and the whole shell both within and without, is undulated and tuberculated, the beak and spire are sharp and pointed, and like the body adorned with red streaks. Its form is strongly contrasted with the *Cypræa*, for in the latter shell the flap of the cheek is always doubled and bent inwards upon the body.

The present shell which we have now executed is drawn from an original in Mr. BULLOCK's Museum, and is a native of Africa and the East Indies. It has more of singularity perhaps than beauty of colour, and resembles in its outline an Urn or Vase upon the side where the spire forms the principal termination. About fifteen species are at present known, of which the *Strombus Chiragra* is the most distinguishable for the great length and curvature of the spines, and smallness of the body; which makes it resemble the common star-fish so frequently found upon the English Coast. This curious shell with others of the *Strombus* Genus we purpose to insert in some future number of the *ARCANA*, hoping that they will form an interesting and comparative series of this singular division, to each enquiring Conchologist.

GENERAL REMARKS
ON THE
FORMS AND ANALOGY OF THE TOUCAN,
PARROT, AND EAGLE.

BY MR. G. PERRY.

THE curious, yet sometimes almost insensible difference in the bill and feet, which exists in the divisions of the claws, has frequently suggested to my mind, the wish for a more exact analogy and description. I have therefore endeavoured in the account of three particular genera, to mark out some outlines of character, in a more distinct manner than has hitherto been done.

The Toucan is a native of Africa and the West Indies, and is also found in all the countries bordering upon the Torrid Zone. The bill of this curious bird is of an uncommon shape, as to its immense length and thickness, when compared with its body, which is sometimes rather small; the bill resembles the claw of a large Lobster, and this extraordinary bill is in one species seven inches and a half long, and flattened like the handle of a knife. The double billed Toucan, or Hornbill, has a second bill standing upon the top of the other, but something less in its size and length, yet it adds very much to the usual thickness of the head, and gives it a very heavy appearance. The generic name for these birds is *Ramphostos*, under this family we also inclnde the *Buceros* of *LINNÆUS*, not seeing any sufficient difference for separating it. These birds, although so formidable in their appearance, are quite harmless and gentle; they feed principally on pepper, which they devour with great ardour, gorging themselves in such a manner as to void it crude and undigested, this

General Remarks, &c.

however is no objection to the natives using it again; they even prefer it to that which is got fresh from the tree, and seem persuaded that the strength and heat of the pepper is qualified by the bird, and that all its noxious qualities are thus extenuated.

We also add that their bills are bent downwards, scythe-shaped, the upper mandible longest and bent over the lower one at the tip of the bill, although this is in a small degree.

The feet of the Toucan resemble those of a Parrot in every respect, having on each foot two claws placed before and two behind, all of unequal length, and roundly hooked at the ends, the outside longest and thickest.

OF THE PARROT.

The bill of this bird so eminently distinguishing it from all other birds, is much shorter and rounder than that of the Toucan, and the upper mandible hangs out much farther over the end of the lower one, and is more hooked at the point.

The various circumstances of its shape are worthy of a close investigation. First, the bill quarterly formed, each part of the bill making an exact quarter of a circle. Secondly, the quarterly formed, projecting. Thirdly, aquiline: Fourthly, aquiline projecting; and Fifthly, by a crenated or channeled front. These distinctions seem to form the most striking varieties that we have hitherto seen, and are each of them to be found in the different Genera of former Authors, such as the Macaw, Parrot, Parroquet, Lory, &c. The Macaw has a circular rim, bare of feathers round the eye, which circumstance assimilates it to the Toucan, but separates it from the Parrot and other smaller birds.

General Remarks, &c.

For the Character of the feet in the Parrot we refer our reader to the foregoing account of the Toucan, they being exactly the same in all respects.

The Parroquettes seem on the other hand always to have a cheek and face covered, and are in some instances crested with tufts, spread like the larger Parrots, but the best division of these into sub-genera, would perhaps be from the form of the tail, which is a more sure test than the colour of the body or wings, which frequently vary in the male and female. The colours in the crest of the Hawk Parrot exhibit all the richest tints of the rainbow, and the bill is singularly marked with a hollow channel in the front, and ending square at the bottom.

The Papuan Lory is distinguished by the great length of the tail, its sharp bill ending in a crooked point, seem strongly to distinguish it from the rest of its congeners, and to assimilate it in some to the elegant birds of Paradise. The eyes of many of these birds seem to project forward, and by this means to loose that natural projection, which a hollow cavity would have improved, as in the human head, where the eyes is quared by a projection of the forehead and temples, but in these birds the deficiency (if so it may be called) is amply supplied by the nictitating membrane, which a protecting skin or membrane, with which the eyes is immediately covered over on any approach of danger, and at other times seems to tubricate and moisten the surface, as often as is necessary. We cannot help remarking in this the singular bill of the Jabiru, the lower mandible being turned upwards, something in the manner of the Avoset and a few other curious species, equally curious in that of the spoonbill, which terminates in an increased breadth at the tip or extremity of the bill.

The Rhynchos Nigra is also a singular bird, of the size of twelve inches, found on the shoals of the Islands

General Remarks, &c.

in the West Indies, the undermandible of the bill being about two inches longer than the upper. It is said to skim along the surface of the sea, many leagues from Land alternately dipping its bill into the waves for the capture of its prey. The Loxia also has in general the upper and lower mandible of the bill crossing each other for the convenient purpose of breaking open the core of different sorts of nuts, for which end it is admirably adopted.

Birds are distinguished chiefly from other animals by the following singularities. In the circumstance of their anatomy, they may be described when flying, as a ship having wings for oars, a bill resembling a bowsprit, its breast bone the keel, the legs and feet seem to be the only part not employed, but these hang down and answer for ballast to keep the vessel steady, and lastly the tail is a rudder of the best kind, to steer its passage through the ambient air. The neck is made beautiful and soft in its texture by the interposition of silky hairs placed amongst the feathers, and the quills of the wings gradually increases in their size from the origin to the extremity, and are capable by different joints, of being folded up closely to the body and serves to keep it warm, but the most remarkable conformation of all is in their bill, which answers the purpose of mouth and nose.

The Golden Eagle has been generally esteemed the sovereign of the feathered tribe, the dignity and majesty of its form are strongly indicated by his large and muscular neck, his powerful talons and broad spreading wings made him an object of admiration in ancient times, and the Romans adopted its image as the great standard for their armies, and the emblem of supreme power.

If the size and strength are to be supposed to constitute the superior claim to the title of king of the birds, perhaps

General Remarks, &c.

the Condor Vulture* might dispute the right even with the Eagle, as the extent of his wings far surpasses all other birds that are known. The bill of the Eagle has an entire resemblance to that of the Parrot and Vulture-tribes, except that the latter has a large fleshy protuberance branching forth from the root of the bill. It has three lengthened toes in front and one behind, which, like the bill, is always of a yellow colour in the female, and from whence he has taken the title of the **Golden Eagle**. The male, in this genus, has this singular peculiarity attached to it, of being much smaller than the female, and which is usual also in the Hawks and Owls; it is found frequently upon the coasts of England and Scotland.

The Eagle is a solitary bird, and brings forth three or four young at a time. It generally chooses some high rock near the sea-coast, where he sits for whole days watching for his prey, the lonely tyrant of the stormy waste.

The Sea Eagle is a large majestic bird, his bill is very strongly bent, his eye fierce and frowning, and his food consists principally of fish, or carcasses of dead animals thrown upon the coast, the bill is wholly black, the legs and feet of a bright yellow, and slender in form.

The Black Eagle is the smallest of the English, and is only two feet three inches in length, from the tip of the bill to the extremity of the tail.

The White-Tailed Eagle is conceived to be the strongest and largest of this tribe, its bill is very broad, the hook of it pointed and projecting in the extremest part; the nostril is deep and plainly marked; his whole features exhibit a haughty ferocity and untameable cruelty. The tail is broad, spreading and white, the back feathers of a light and dark brown mixed, like most of its congeners.

* See No. 2. of the **ARCANA**.

General Remarks, &c.

Having thus given a comparative outline of the most remarkable circumstances of the bills and feet, in what we have described of the Linnæan genera, we cannot help noticing the curious bill of the Pelican,* which is provided with a large flexible pouch, in the under-side of which he can carry away half a bushel of dead fish.

The Flamingo owes all its singularity to the amazing length of its neck and legs, the bill is broadest in the middle and bending suddenly inwards, something like the head of a walking stick, and the lower mandible also, three times as thick as the upper one. This is the only instance that is known in nature of a bird having such a form. The Horned Screamer has a kind of sharp bill springing out of the shoulder of each wing and supposed to be extended for self-preservation, and from the center of the forehead proceeds a sharp and curvated bristle hanging forwards over the bill. Such are some of the most striking contrasts and exhibitions of variety, not demonstrated always through a whole family of birds, but most likely brought forward by the hand of the Creator, to excite our wonder and surprize at the greatness of all his designs.

* We shall shortly have the pleasure of presenting our Subscribers with a representation of the Pelican, from the drawing taken from a beautiful living specimen in the possession of Mr. POLITICO.

Anas (cygnus)

specieis niger Perry, arcana, pl. 59

Mar 1st 1811

Anas cygnus niger

13 parts out of 21
52 plates : " 84

Part 14 to 21 missing, also 1 = 32 plates

Part 14 left out of my paper - in Natur
Naturhist vol. 7 x 1 x p. 9

The following are

- 21 *Pelicanus specieis - canorus* pl. 56
- 22 *Anas cygnus-niger* pl. 59
- 23 *Lanius merulius* pl. 70
- 24 *Acca cordata - a. patagonia* pl. 71
- 25 *Cassowara sumia* pl. 82



The Field Naturalists' Club of Victoria.

“PERRY'S ARCANA”—AN OVERLOOKED WORK.

BY GREGORY M. MATHEWS, F.R.S.E., AND TOM IREDALE.

(Read 15th January, 1912.)



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"PERRY'S ARCANA"—AN OVERLOOKED WORK.
BY GREGORY M. MATHEWS, F.R.S.E., AND TOM IREDALE.
(Communicated by F. G. A. Barnard.)

(Read before the Field Naturalists' Club of Victoria, 15th Jan., 1912.)
It rarely happens that a work published in monthly parts, of which twenty-one were issued, and dealing with subjects from every class of natural history, entirely escapes the notice of systematists in every branch of science for one hundred years. That such would appear to be the case with the periodical above named suggests that a *résumé* of its contents will be of interest, especially as many novelties are described and new generic names introduced.

On the 1st January, 1810, appeared the first part of a monthly journal after the style of the well-known "Naturalists' Miscellany" of Shaw and Nodder. It contained four plates, with accompanying letter-press and additional pages of interesting matter. Twenty similar parts were issued, but as the book now under review does not include the original wrappers we cannot give the title, but the title-page of the bound parts reads:—

"Arcana—or—The Museum of Natural History:—containing the most—recent discovered objects.—Embellished with coloured plates,—and—corresponding descriptions:—with—Extracts relating to Animals,—and—remarks of celebrated travellers;—combining a—general survey of Nature.—London:—Printed by George Smeeton, St. Martin's Lane—for James Stratford, 112 Holborn Hill.—1811."

A page of dedication to J. C. Lettsom, Esq., M.D., &c., is concluded "by George Perry." The first four plates are headed "Zoology, Pl. I.," "Conchology, Pl. I.," "Botany, Pl. I.," and "Entomology, Pl. I." This plan was not implicitly followed, though a similar system of plate division was adopted, the plates dealing with diverse subjects each month.

We are acquainted with only four copies of the work—one in the Natural History Museum, South Kensington; one in the library of the Zoological Society, London; one in Sweden, and the fourth in our private library at Watford.

We have carefully collated the work, and as the plates are all dated in fours we conclude they were issued as dated. This conclusion is reinforced by internal evidence, as we note in the letter-press to a December plate the following:—"In a former number of the 'Arcana' (for May) we imparted to our readers a new species of this curious genus." Upon reference we find the plate referred to is dated May. Again, in the September plates a direct reference to the forthcoming publication of a work is given, which work did not appear until after January, 1811. Other confirmatory notes we give in the following pages.

The plates and letter-press are neither numbered nor paged, so for the purposes of this paper we have numbered the plates I. to LXXXIV., and will refer to them under these numbers. It is easily remembered that Plates I. to XLVIII. were issued in 1810, and Plates XLIX. to LXXXIV. in 1811, while, as four were published monthly, the exact month is soon calculated.

It is only just to record that Mr. C. Davies Sherborn, while engaged on the second part of his monumental work, the "Index Animalium," had duly noted all the new names in this work, and they have been carefully recorded for the benefit of scientific workers and are at present available in the Geological Department of the British Museum (Natural History). It would thus have been unnecessary to draw up these notes were it not for the fact that the publication of that much-desired second volume of the "Index" does not seem to be yet in sight, owing to the colossal nature of the undertaking.

Interested mainly in birds and shells, we shall first deal with the plates covering these subjects, and then note the other plates discussing points that have attracted us while working up the first two subjects.

The author of the "Arcana" also published a "Conchology," and the Australian shells therein have been discussed by Hedley (Proc. Linn. Soc. N.S.W., 1902, p. 24),* who has given a history of that book, as well as a life of the author. The "Arcana" is important inasmuch as it was mainly published before the appearance of the "Conchology," and, dealing with much the same material, antedates the "Conchology," and this precedence of this hitherto unquoted work necessitates some rather important alterations.

AVES.

Plate VII. is the first to give a bird, the Condor Vulture being there represented without any scientific equivalent being proposed. This is one of the few instances where no Latin name is quoted.

Plate IX. is named *Psittacus nonpareil*, a hitherto unrecorded synonym of *Platycercus eximius*, Shaw.

Plate XI. is of *Psittacus viridis*, which enters into the synonymy of *Pezoporus terrestris*, Shaw.

Plate XX. shows *Ara militaris* from "New Holland," being, however, *Ara militaris* (Linné) of South America.

Plate XXII. is a splendid figure of the Red-headed Crane of New Holland, which Perry named *Ardea rubicunda*. One of

* See also a paper by Mr. J. H. Gatliff in *Victorian Naturalist* for September, 1902 (xix., p. 75).—ED. VICT. NAT.

us has already pointed out (Nov. Zool., vol. xvii., p. 499, 1910) that this name must be used.

Plate XXIX. is of *Paradisea regia*, and is Linné's species.

Plate XXXVI. figures *Psittacus papuensis*, from Papua.

In the text is written, "resemblance to that of the *Ara militaris* or Military Macaw, described in the fifth number of the 'Arcana.'" *Ara militaris* is Plate XX., showing that up to this point the four plates per month had apparently been duly issued. *Plate XLIV. Cerithia coronata*.

Plate L. represents the Red Phalarope, which Perry names *Tringa rubra*, variety.

Plate LVI. is of *Pelicanus africanus*, which must enter into the synonymy of *Pelecanus rufescens*.

Plate LIX. is of the Black Swan, which Perry called *Anas cygnus-niger*.

Plate LXX., figuring *Lanius aurantius*, from Buenos Ayres, is a species of *Thamnophilus*, but seems indeterminable.

Plate LXXVIII., of the Crowned Crane of Africa, is called *Ardea coronata*, which passes into the synonymy of *A. pavonina*, Linné.

Plate LXXXII. is a figure of a Cassowary, which they called *Cassowara eximia*, and guessed as habitat South America. It is apparently a New Guinea form, and this name has not previously been noticed in literature.

MOLLUSCA.

Plate II. is very important to conchologists. On it are figured four shells, of which No. 1 is called *Volutella divergens*, No. 2 *Septa scarlatina*, No. 3 *Rostellaria rubicauda*, and No. 4 *Trochus apiaria*. The text states:—"In describing the four shells contained in the annexed plate, we shall endeavour previously to explain the different characters of each genus, that the reader may afterwards more clearly recognize each peculiar distinction appropriate thereto."

This is the first introduction of the generic name *Volutella*, which, however, falls as a synonym of *Vasum*, Bolten (Museum Boltenianum, p. 56, 1798); this species is perhaps *V. muricatum*, Born.

This introduction of the genus *Septa*, however, once more disorganizes the nomenclature of the Tritons. Perry diagnoses it thus:—"Shell univalve, spiral, having membranaceous septa or divisions, placed upon the body and spire opposite and alternate; these are of a different colour to the rest of the shell, and slightly tuberculated." The only species at that time noted and figured is *Septa scarlatina*; consequently this species becomes automatically the type of *Septa*. This shell is easily identified as *Murex rubecula*, Linné (Syst. Nat., 10th

ed., p. 749, 1758). In the Bull. U.S. Fish Commission, vol. xx., part i, 1900, p. 416, Dall and Simpson used *Septa*, Perry (1811), to replace *Triton*, Montfort (1810), not Linné (1758), *Tritonium*, Cuvier (1817), not Muller (1770), for the shells congeneric with *Murex tritonis*, Linné.

In the Smithsonian Miscell. Collections, vol. xlvi., pp. 114 *et seq.* (1904), Dall wrote up an historical and systematic review of the Frog-shells and Tritons, and therein gave his reasons for thus accepting *Septa*, and named as type *S. rubicunda*, Perry.

But this prior introduction of *Septa* in conjunction with a shell not congeneric with *S. rubicunda*, Perry, necessitates a readjustment of names. Pilsbry (Proc. Acad. Nat. Sci. Philad., vol. lvi., p. 21, 1904) cited *Septa* as a sub-genus of *Aquillus*, Montfort, but as *Septa* appeared on 1st January, 1810, and *Aquillus* 1810, it is very doubtful whether the latter appeared at such an early date. It is certain that *Septa* must be referred to the neighbourhood of *Cymatium*, Bolten (1798), but whether as an absolute synonym of that name or whether it can be retained sub-generically we are not prepared to decide. A monograph of the Tritons is much required, and would appear to be urgently necessary, inasmuch as Dall's review (above quoted) was of a skeletal nature, and not altogether satisfactory, as we have seen the same shell given three different generic locations by students attempting to utilize Dall's key.

The third shell is called *Rostellaria rubicunda*, and it is obviously the same shell as figured by Chemnitz (vol. xi., p. 146, tab. 195A) as *Strombus erythrinus*, and which Tryon (Man. Conch., vol. vii., p. 119, 1885) relegated to the synonymy of *Strombus dentatus*, Linné, with varietal rank.

The fourth is *Trochus apiaria*, "a nondescript, lately imported from Botany Bay." The same figure is given in the "Conchology," pl. xlvi., fig. 3, with the description slightly altered and the locality given as Van Diemen's Land. When Hedley discussed Perry's Australian shells he ignored this species, and we are unable to definitely name it.

Plate VI. is of *Septa tritonis* = *Murex tritonis*, Linné.

Perry wrote:—"This shell, classed with the genus *Septa*, and which has hitherto been described erroneously as a *Murex*"; and then noted—"Another shell, which has considerable resemblance in its general form to the one now described, has lately been discovered in New Holland, but it differs in the minuter peculiarities of form and colour, being much smaller, and of a redder colour." This apparently refers to the shell figured in the "Conchology" as *Septa rubicunda*. In the later work *Septa tritonis* is not reproduced, though most of the "Arcana" shells are here again illustrated.

Plate XII. is of *Pomacea maculata*, which "is conceived to be a native of the South Seas." This is the first use of the generic name *Pomacea*, which is a synonym of *Ampullaria*, Lamarck. The species we cannot recognize, while the habitat, when it was re-figured in the "Conchology," pl. xxxviii., fig. 3, was altered to West Indies.

Plate XV. contains figures of four fossil shells, named *Conus angulatus*, *Aculea angulata*, *Cerithium lœvis*, and *Cassis verrucosa*, of which is written:—"The above shells are of the kind found in different parts of France, in beds of gravel or clay."

Plate XVI. purports to be a figure of *Conus gloria-maris*, and a shell in the British Museum is mentioned. When the same figure was reproduced in the "Conchology," pl. xxv., fig. 1, it was definitely said to be "delineated from a fine specimen in the British Museum." The figure seems, however, to have been drawn from a nice specimen of *Conus textilis*; moreover, no record is kept of a British Museum specimen of *Conus gloria-maris* at that early date. Perry notes:—"The *Conus* has a considerable analogy to the genus *Volutella*, lately established."

Plate XIX. is a good representation of "*Bulimus zebra*, a native of the South Seas and of the islands of New Zealand," which shows a quaint mixing of localities, the shell being the well-known *Achatina zebra*, Gmelin, of Africa.

Plate XXIII. introduces the genus *Triplex*, the species name chosen being *foliatus*. This is a splendid figure of the shell many years later named *M. palmarosæ*, Lamarck (Anim. s. Vert., vol. ix., p. 572). When, later, Perry reproduced the same figure in the "Conchology" (pl. vi., fig. 3), he altered the specific name to *T. rosaria*, and the reproduction is not such a nice picture as the "Arcana" one. Thus by monotypy the type of *Triplex* is *T. foliatus*, Perry, and the specific name supersedes *M. palmarosæ*, Lam.

Perry remarks:—"The *Triplex* genus of shells are remarkable for their triangular form, which is occasioned by three thick divisions placed lengthwise on the outside of the shell, and which form its chief ornament. Other shells, which in many respects have a resemblance to it, are distinguished in a similar way: the *Monoplex* has one fold on its body; the *Biplex* two folds; the *Hexaplex* six folds, and so on with the following species, until we arrive at the greatest number, the *Polyplex*, in which the folds are very numerous, but the number not defined."

Plate XXVIII. contains figures of five shells, the centre one being *Scalaria disjuncta*, the *Turbo scalaris*, Linné. Of the other four is written:—"The four small shells which accom-

pany the Wentletrap are drawn from specimens lately imported from New South Wales. Nos. 1 and 2 are of the *Conus* genus, and resemble the larger kind in their form; No. 3 is evidently of the *Trochus* kind; No. 4, *Pyrula*, resembling a little pear. They are given to show the variety of their patterns and form, and are hitherto unnamed by any conchologist."

Plate XXX. is a nice figure of *Voluta pacifica*, of which it is written that it was discovered "by that accurate investigator of nature, Dr. Solander, in one of the small islands near New Zealand, when employed upon a voyage of discovery with that illustrious circumnavigator, Captain Cooke."

Plate XXV. contains two beautiful figures of shells, *Triplex flavigunda*, from Botany Bay and New Zealand, and *Triplex rubicunda*, from Ceylon. These were both figured under the same names, but not such good figures, in the "Conchology" (pl. vi., pp. 2 and 4), concerning which Hedley wrote:—" *Triplex flavigunda*, Perry, and *T. rubicunda*, Perry, are marked by Deshayes (An. s. Vert., ix., p. 574) as synonyms of *Murex adustus*, Lam. (1822). Over all these names *Purpura scabra*, Martyn (Univ. Conch. (1789), pl. 113) has precedence. While agreeing that *Triplex flavigunda*, Perry = *Purpura scabra*, Martyn, we would point out that *Triplex rubicunda*, Perry, seems to differ, and is identical with the shell named *Murex rubiginosus* by Reeve (Proc. Zool. Soc. Lond., 1845, p. 86), over which it has priority. We have examined Reeve's type.

Perry notes that *Murex ramosus*, Linné, should be called *Triplex ramosus*, as it is not referable to *Murex* as he restricts it.

Plate XXIX., named *Conus particolor*, is a good figure of a specimen of *Conus aulicus*, Linné. This was omitted from the "Conchology," so has hitherto been unrecorded.

Plate XLIII. shows Perry's *Bulimus phasianus*, which becomes a synonym of *Phasianella australis*, Gmelin.

Plate XLVII. is a beautiful figure of the shell later named *Murex tenuispina* by Lamarck. It was re-figured in the "Conchology," pl. xlv., fig. 3, and there re-named *Aranea triremis*. This name has been accepted in lieu of *M. tenuispina*, Lamarck, by Hedley, but another alteration seems necessary, as on this plate, which has priority, the name chosen is *Aranea gracilis*.

Plate LII. is named by Perry *Strombus solitarius*, which name becomes a synonym of *Strombus gallus*, Linne.

Plate LIV. is of a magnificent species of *Murex*, measuring 184 mm. in length, and which is named *Aranea conspicua*. This is a much better figure than the one under the same name in the "Conchology" (pl. xlvi., fig. 3), and, though of such grand dimensions, we have been unable to identify it.

Plate LVIII. is lettered *Buccinum dilatum*, but the text is headed *Buccinum orbiculare*. It is a good figure of the shell later named *Dolium maculatum* by Lamarck (An. s. Vert., vol. x., p. 140, 1844), and, as both Perry's names have priority, we prefer the text name, and therefore *Tonna orbicularis*, Perry, must be used for the shell now called *Tonna maculata*, Lamarck.

Plate LXII., named *Trochus zebra*, is a fair figure of *Trochus niloticus*, Linné.

Plate LXVI. is called *Buccinum distentum*, and of which Perry writes:—"It differs from others chiefly in the shortness of the rostrum or beak, and more especially from that which we have described formerly in No. XV. of the 'Arcana.' " The figure is indeterminable, but seems to have been drawn from a specimen of *Turbo petholatus*, Linné, and, the mouth having been damaged, the artist has imagined a canal. No. XV. of the "Arcana," above referred to, would contain Plate LVIII., where the other dissimilar *Buccinum* is figured, and it would follow that four plates to each number had been adhered to.

Plate LXXI., of *Pecten sanguineum*, from the Red Sea, is another indeterminable figure.

Plate LXXV. is a figure of *Strombus chiragra*, Linné, which Perry named on the plate *Strombus divergens* and in the text *Strombus nigricans*.

Plate LXXX., giving a splendid figure of a Cone which Perry called *Conus bandatus*, is another of his puzzles. It is quite indeterminable, but may have been drawn from a specimen of *Conus miles*, Linné, to which has been added a little imagination by the artist.

Plate LXXXIV. is entitled *Pinus*. The text is headed "Class Fossilia, Order Univalvia, Species *Rostellaria*." This last would seem to have meant genus, and the text bears this out, but "appears to belong to the genus *Rostellaria*."

ECHINODERMA.

Plate XXXIV. is of *Echinus castaneus*, a native of the South Seas and of the coasts of New Holland.

Plate XXXVIII. represents *Echinus stellaris*, from the South Seas, and in the text another species is mentioned as *Echinus sceptriferus*. None of these names appear to have been noticed before in literature.

MAMMALIA.

Plate I. figures the Tiger, *Felis tigris*, Linn.

Plate X. is of the *Platypus*, or *Ornithorinxus paradoxus*, from New Holland. The text contains the following:—"A second animal of the same genus, and which may be called the *Platypus longirostra*, has lately been shot in Adventure Bay, at Van Dieman's Land." Then follows the description, which seems

to pertain to *Echidna setosa*, Cuvier, as figured in Gould's "Mammals of Australia," vol. i., pl. 3, and has priority.

Plate XIII. is of the Dolphin.

Plate XIV. represents the Vicuna, *Camelus pacos*, Linné.

Plate XVII. is of the Koalo, or New Holland Sloth.

Plate XXI. is a nice figure of the Wombach of Botany Bay, which Perry called *Opossum hirsutum*. This is the first and only time we can note Opossum being used as a generic name. Fortunately, it falls as a synonym of *Phascolomis*, Geoffroy (1803). The specific *hirsutum*, however, would appear applicable to the New South Wales Wombat, and the earliest name available.

Plate XXVII. figures *Dipus muscola*, from New Holland. We are unable to identify this figure.

Plate XXXII. illustrates the "Opossum Flying Mouse, that lives in the trees and forests of Botany Bay." Perry writes:—"Character.—Not exactly known."

Plate XL. is a figure of *Sapajus jacchus*.

Plate XLI. illustrates *Bradypterus striatus*, supposed to come from South America.

Plate XLIX. figures the Giraffe, from near the Cape of Good Hope, which Perry called *Camelus camelopardalis*.

Plate LIII. introduces the genus *Antelopa*, the plate representing *Antelopa montana*, the Mountain Cow of Morocco.

Plate LVII. is the Lion, *Felis leo*.

Plate LXI. is of the Elephant, from Africa and Asia, which Perry named *Elephas gigas*, and in the text he wrote:—"There is also found a second and different species, which is said to reside in the kingdom of Tibet, and, being much smaller and of an opposite form, is to be considered as a separate animal from the above under the title or name of *Elephas socotrus*."

Plate LXIII. is of the Panther, *Felis pantherus*, from Senegal.

Plate LXV. is of the Leopard, *Felis leopardis*.

Plate LXVII. figures a skull of *Babyrousa quadri-cornua*, from Amboyna. According to Palmer (Index Generum Mammalium, 1904, p. 130), the earliest name for this genus is *Babirussa*, Frisch, but as that name is invalid, that writer being non-binomial (= non-binary), the next in sequence is *Babiroussus*, Gray (Lond. Med. Repos., vol. xv., p. 306, April, 1821). Perry's *Babyrousa* would thus appear applicable, having ten years' priority over Gray's name.

Plate LXVIII. is a figure of the Guanaco, which Perry called *Guanaco patagonia*. Again referring to Palmer (p. 128), we find the earliest name for this genus is *Auchenia*, Illiger, proposed the same year as Perry's, but that this name is pre-occupied by Thunberg (1789), and therefore *Dromedarius*,

Wagler (1830), is considered available. Perry's *Guanaco* seems to claim usage, being nineteen years earlier than Wagler's name.

Plate LXXII. is a skull of the fossil Elk, *Cervus fossilis*.

Plate LXXIII is of *Dipus tridactylus*, or Kangaroo.

Plate LXXVI. figures *Equus zebra*.

Plate LXXVII. illustrates *Ovis aries*.

Plate LXXXIII. is of the *Hyæna*.

REPTILIA.

Plate V. is a picture of the Rattlesnake, *Crotalus horridus*, Linné.

Plate XXV. is a new Chameleon, called *Chamæleo pallida*, from Egypt.

Plate XXXIII. figures a tortoise from Panama, which Perry calls *Testudo panama*.

PISCES.

Plate VIII. is of *Sparus bandatus*.

Plate XVIII. is of the Sea Horse, genus *Syngnathus*, or *Hippocampus*, species *foliatus*, a native of Botany Bay. In the text is written:—"The *Hippocampus*, or Sea Horse, has been always placed by the most eminent naturalists with *Syngnathus* . . . and The fish called *Syngnathus*, or Pipe Fish, we cannot help considering as decidedly distinct from the proper *Hippocampus*, to be divided into a separate form, and we regard the different form of the tail already described as quite sufficient reason." This is the first use of *Hippocampus* generically, and as type must be quoted *H. foliatus*.

Plate XXVI. purports to figure a new species of *Stromateus* —viz., *depressus*.

Plate XLV. represents *Hippocampus erectus*, and in the text we again note:—"In a former number of the 'Arcana' (for May) we imparted to our readers a new species of this curious genus. . . . The *Hippocampus erectus* is a native of the American Seas." Plate XVIII. is here referred to, confirming the conclusion that four plates were regularly issued monthly.

Plate LV., figuring *Congiopodus percatus*, appears to introduce a new generic name which has not hitherto been noticed.

Plate LXIV. is of *Esox niloticus*, from the Nile.

Plate LXXIX. figures *Zeus faber*, or John Dory.

INSECTA.

Plate IV. gives figures of two species of *Fulgora*—*F. pyro-rhynchos*, from "Bengal," and *F. candelaria*, a native of China.

Plate XXIV. figures *Mantis foliaceus*.

Plate XXXI. is of *Papilio demosthenes*, from the Brazils.

Plate XXXVII. contains two figures—the upper one of

Papilio phillis, Fabricius, from Mexico; the lower, *Phalæna corollaria*, from North America.

Plate XLVI. figures a *Papilio* of the division *Arcuatus*, which Perry then called *Arcuatus cæruleus*. In the text Perry proposes a new classification of the Papilionidæ, naming the divisions from the shape of the wings. His six divisions are named—*Arcuati*, *Orbati*, *Caudati*, *Excelsi*, *Cuspidati*, and *Muscarii*. Though noting these are divisional names only, and using them as such, in a few cases, as the one under notice, he omits the prefixation of the generic *Papilio*.

Plate LI. is of a *Phalæna* of the division *Arcuata*, species name *vitrea*, from South America.

Plate LX. represents a *Papilio* which Perry called *Arcuatus catenarius*, from the Brazils.

Plate LXIX. is a beautiful figure of *Sphynx castaneus*, said to have arrived from Port Jackson.

Plate LXXIV. represents a *Phalæna* of the division *Arcuatus*, but here called *P. fenestra*.

Plate LXXXI. is of *Papilio volcanica*, from Rio de la Plata and Peru.

PALÆONTOLOGY.

Plate XLII. illustrates a fossil Trilobite, which Perry called *Monoculithos gigantea*, a generic introduction previously unnoticed.

Plate XLVIII. contains two more species of Perry's genus *Monoculithos*, the specific names used being *polymorphus* and *hexamorphus*.

BOTANY.

Plate III. in the first part is headed "Botany, Pl. I." and is noteworthy as being the first and last to deal with a botanical subject, the plate representing the *Ceroxylon*, or Palm-tree.

